

# A

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## ALPHABETIC COMPILATION OF DATA

### ARALDITE

Trade name of CIBA-GEIGY for epoxy resins,  
see also EPOXY RESINS

ARALDITE B

ARALDITE D

ARALDITE F and similar epoxy resins based on Bisphenol A

### ARALDITE MY 720

ARALDITE F + EPOXY NOVOLAC (50:50)

see NOVOLAC

# **ARALDITE B**

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## **Base resin**

CT 200 - Solid, unmodified epoxy resin based on Bisphenol A

# ARALDITE B

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
146	CT 200(100) + HT 903(30) 2 h 110 °C + 14 h 140 °C CIBA-GEIGY	0	126.5 ± 3.9	12.1 ± 0.4	2.91 ± 0.07 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	too flexible for testing		
		1 × 10 <sup>7</sup>	81.4 ± 13.7	4.5 ± 0.7	3.48 ± 0.08 × 10 <sup>3</sup>
		3 × 10 <sup>7</sup>	15.7 ± 1.0	0.9 ± 0.1	3.31 ± 0.30 × 10 <sup>3</sup>
147	CT 200(100) + HT 903(30) + + Silica(200) 2 h 110 °C + 14 h 140 °C CIBA-GEIGY	0	140.3 ± 4.9	3.4 ± 0.1	9.64 ± 0.93 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	74.6 ± 1.9	1.4 ± 0.0	1.07 ± 0.16 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	68.7 ± 2.9	1.2 ± 0.1	1.05 ± 0.02 × 10 <sup>4</sup>
		3 × 10 <sup>7</sup>	28.5 ± 3.9	0.7 ± 0.1	8.22 ± 0.39 × 10 <sup>3</sup>
148	CT 200(100) + HT 903(30) + + Dolomite(200) 2 h 110 °C + 14 h 140 °C CIBA-GEIGY	0	76.5 ± 5.9	1.6 ± 0.1	9.42 ± 0.29 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	74.6 ± 3.9	1.5 ± 0.1	8.78 ± 2.26 × 10 <sup>3</sup>
		1 × 10 <sup>7</sup>	57.9 ± 7.8	1.1 ± 0.1	9.91 ± 0.34 × 10 <sup>3</sup>
		3 × 10 <sup>7</sup>	41.2 ± 2.9	1.3 ± 0.1	7.71 ± 0.27 × 10 <sup>3</sup>

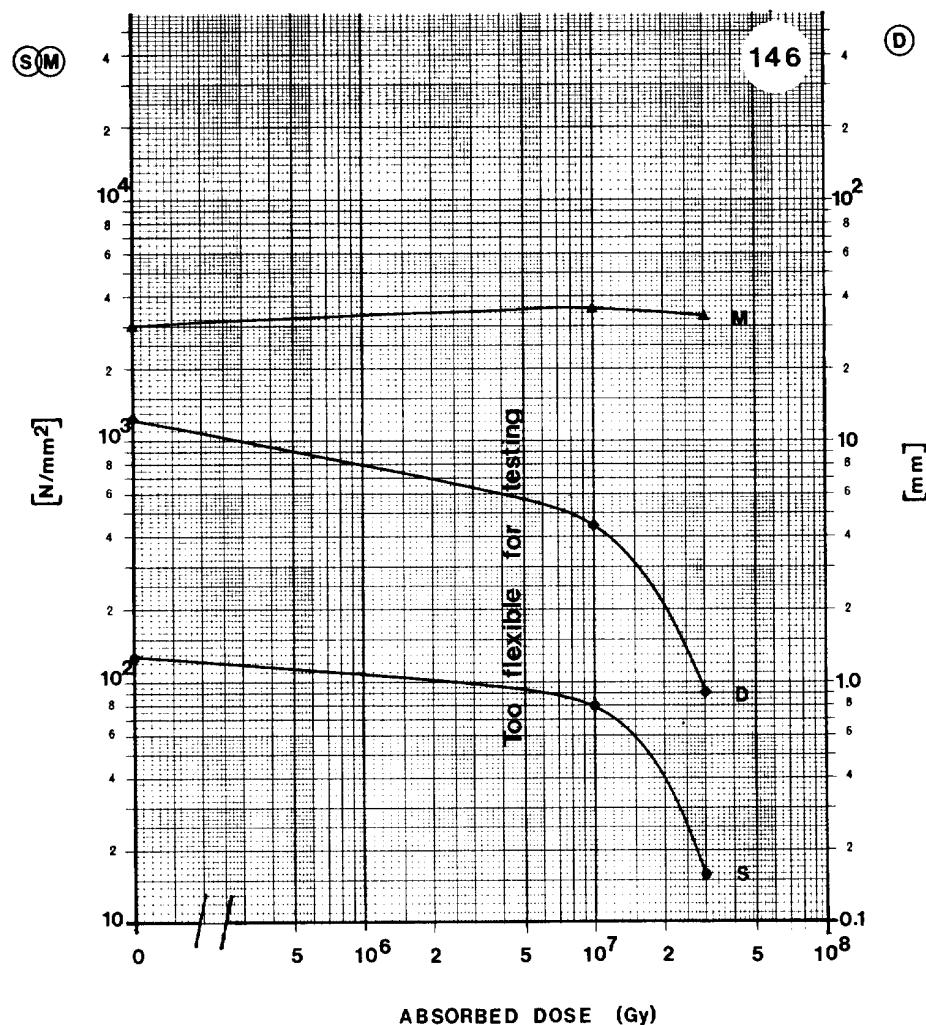
# ARALDITE B

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**MATERIAL:** CT 200(100) + HT 903(30)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	126.5 N/mm <sup>2</sup>
D	Deflexion at break	12.1 mm
M	Modulus of elasticity	2.9 x 10 <sup>3</sup> N/mm <sup>2</sup>

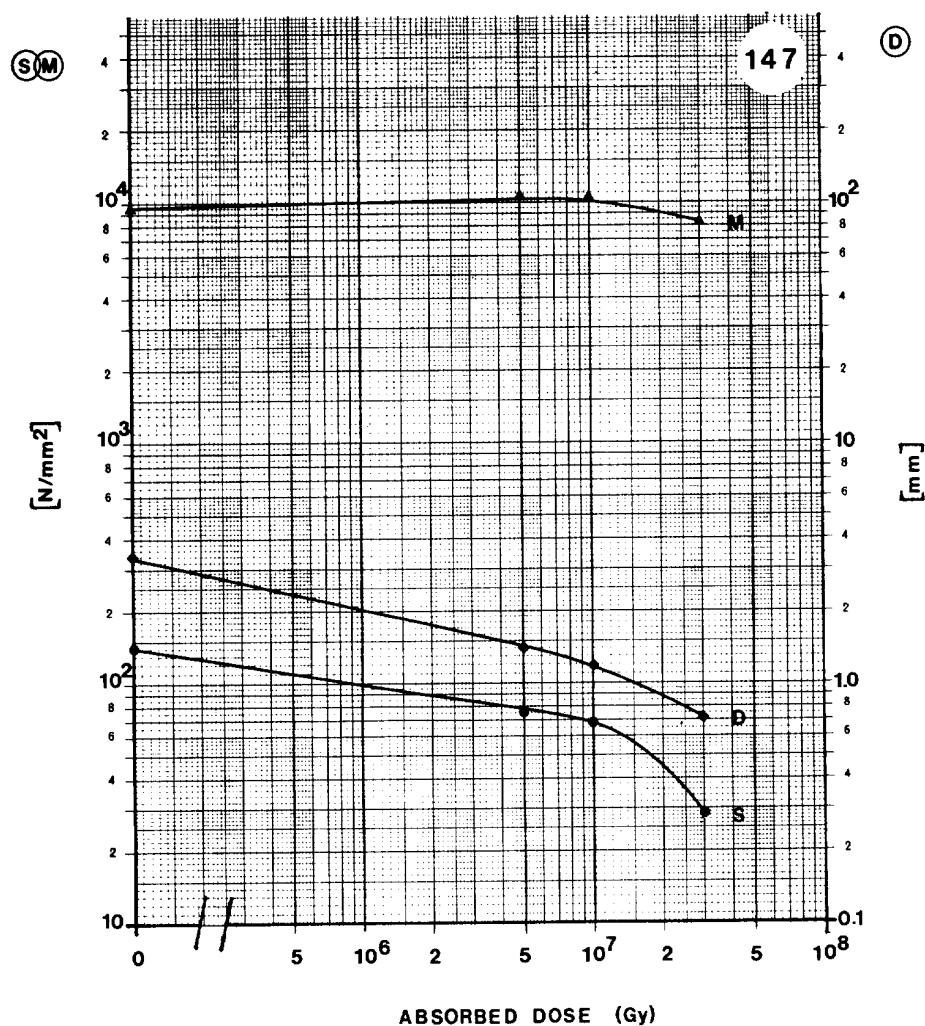
# ARALDITE B

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**MATERIAL:** CT 200(100) + HT 903(30) + SILICA(200)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	140.3 $N/mm^2$
D	Deflection at break	3.4 mm
M	Modulus of elasticity	$9.6 \times 10^3 N/mm^2$

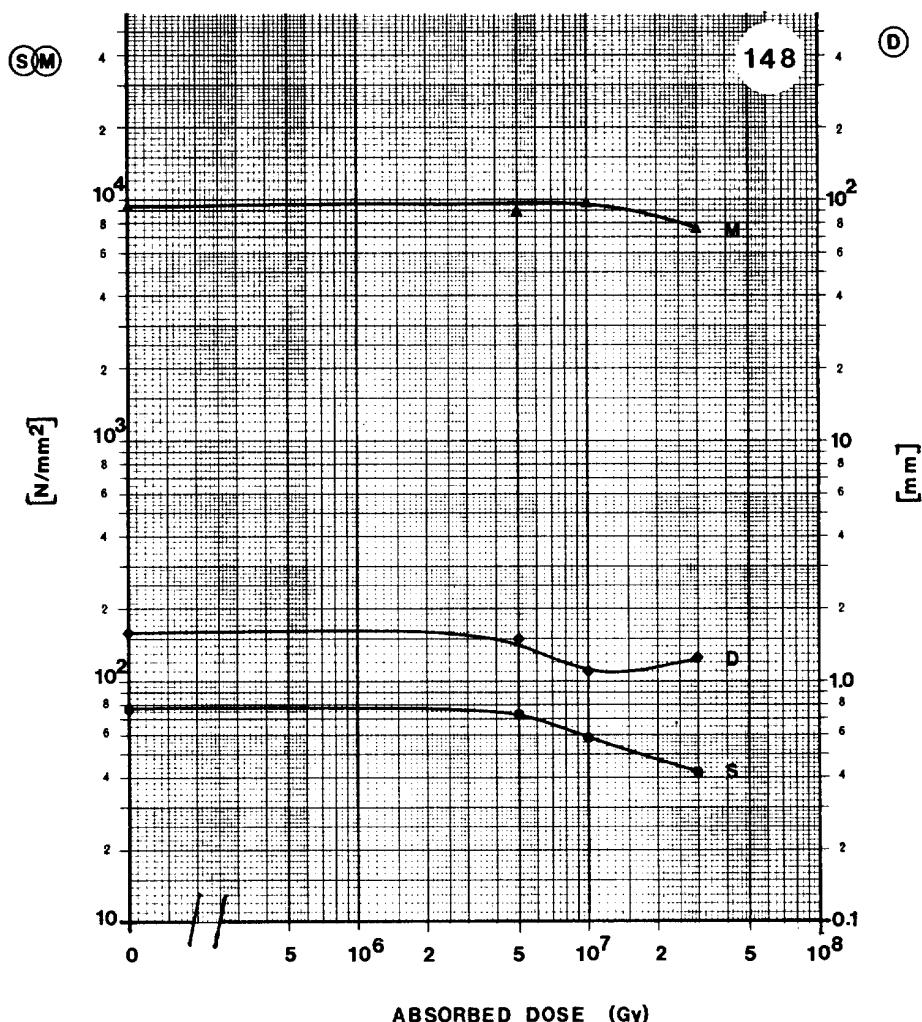
# ARALDITE B

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**MATERIAL:** CT 200(100) + HT 903(30) + DOLomite(200)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	76.5 $\text{N/mm}^2$
D	Deflection at break	1.6 mm
M	Modulus of elasticity	$9.4 \times 10^3 \text{ N/mm}^2$



## **ARALDITE D**

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# ARALDITE D

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
320	ARALDITE D + HY 956 (Cured at ambient temp.)	0	92.2 ± 12.8	5.9 ± 1.6	2.78 ± 0.05 × 10 <sup>3</sup>
		2 × 10 <sup>6</sup>	46.1 ± 31.4	2.2 ± 1.7	2.82 ± 0.27 × 10 <sup>3</sup>
		6 × 10 <sup>6</sup>	23.5 ± 10.8	1.1 ± 0.6	2.44 ± 0.38 × 10 <sup>3</sup>
		2 × 10 <sup>7</sup>	samples broken after irradiation		
		*) { SIN	2 × 10 <sup>6</sup>	69.7 ± 32.4	3.7 ± 2.3
		6 × 10 <sup>6</sup>	11.8 ± 3.9	0.6 ± 0.2	2.33 ± 0.12 × 10 <sup>3</sup>
		2 × 10 <sup>7</sup>	samples broken after irradiation		
	ARALDITE D + HY 956 filled with cotton (Cured at ambient temp.)	0	91.2 ± 3.9	5.3 ± 1.1	3.82 ± 0.09 × 10 <sup>3</sup>
		2 × 10 <sup>6</sup>	21.6 ± 3.9	1.1 ± 0.3	2.84 ± 0.06 × 10 <sup>3</sup>
		6 × 10 <sup>6</sup>	22.6 ± 3.9	1.3 ± 0.4	2.25 ± 0.32 × 10 <sup>3</sup>
		2 × 10 <sup>7</sup>	samples broken after irradiation		
		*) { SIN	2 × 10 <sup>6</sup>	36.3 ± 9.8	2.1 ± 0.8
		6 × 10 <sup>6</sup>	26.5 ± 9.8	1.4 ± 0.5	2.75 ± 0.34 × 10 <sup>3</sup>
		2 × 10 <sup>7</sup>	1.9 ± 0.0	0.4 ± 0.1	5.20 ± 1.84 × 10 <sup>2</sup>

\*) Irradiated in vacuum



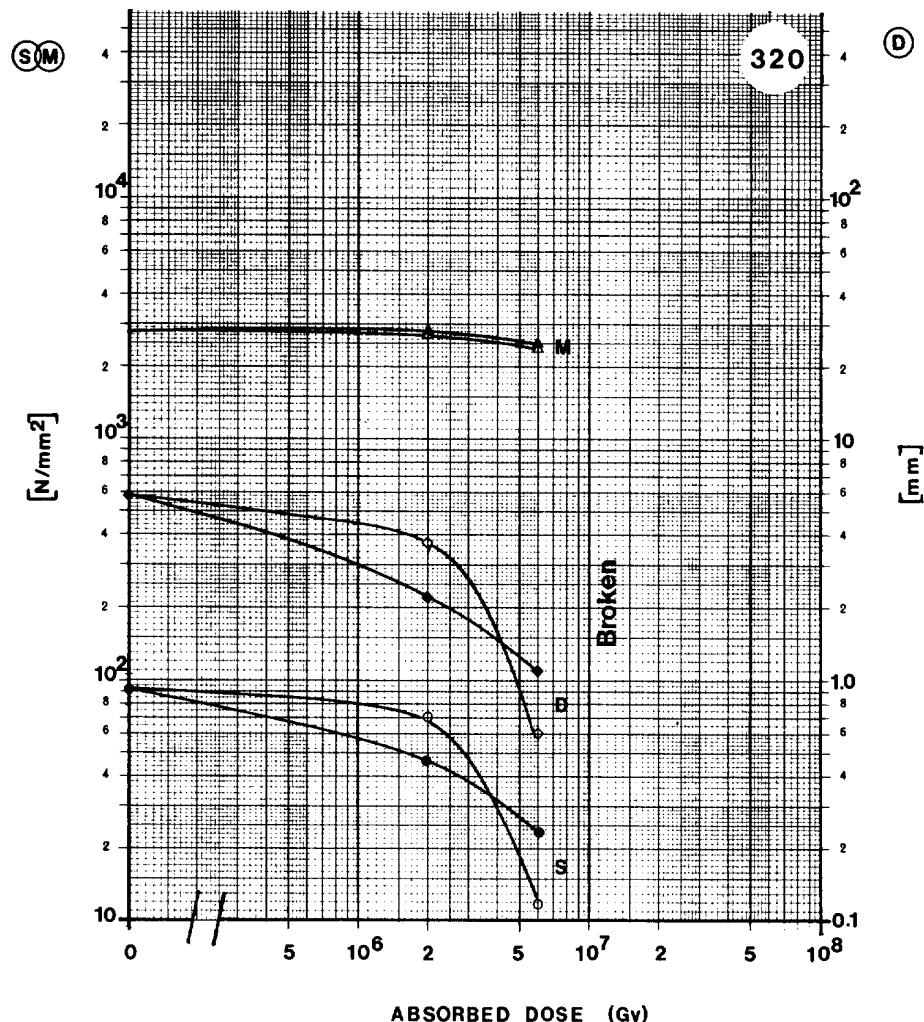
# ARALDITE D

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**MATERIAL:** ARALDITE D + HY 956

**SUPPLIER:** SIN

**Remarks:** USED FOR INJECTOR TRIM COILS AT SIN



Open symbols: irradiated in vacuum  
Full symbols: irradiated in air

CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	92.2 N/mm <sup>2</sup>
D	Deflexion at break	5.9 mm <sup>-1</sup>
M	Modulus of elasticity	2.8 × 10 <sup>3</sup> N/mm <sup>2</sup>

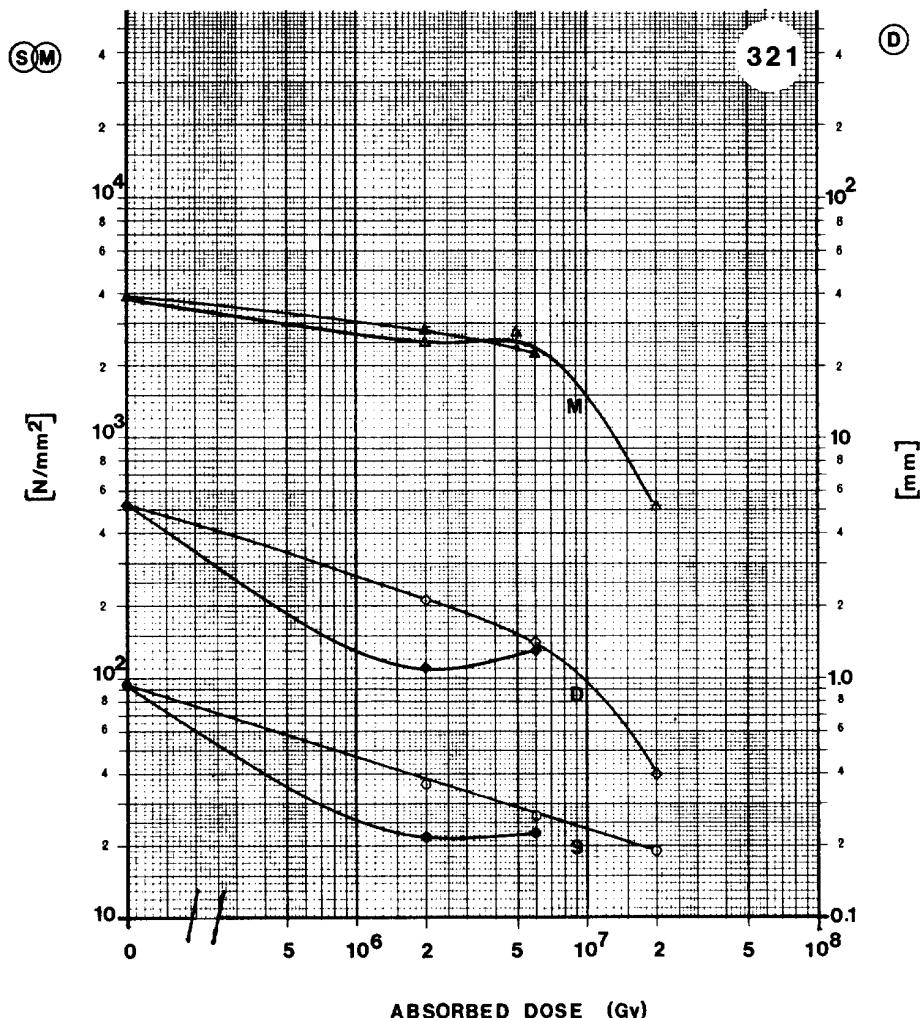
# ARALDITE D

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**MATERIAL:** ARALDITE D + HY 956 FILLED WITH COTTON

**SUPPLIER:** SIN

**Remarks:** USED FOR INJECTOR TRIM COILS AT SIN



Open symbols: irradiated in vacuum  
Full symbols: irradiated in air

CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	91.2 $N/mm^2$
D	Deflection at break	5.3 mm
M	Modulus of elasticity	$3.8 \times 10^3 N/mm^2$

# **ARALDITE F**

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ARALDITE F and similar epoxy resins based on Bisphenol A

## **Base resins**

- CY 205 - liquid, unmodified epoxy resin based on Bisphenol A = ARALDITE F
- CY 222 - liquid, modified epoxy resin based on Bisphenol A
- MY 740 - liquid, unmodified epoxy resin based on Bisphenol A
- MY 745 - liquid, modified epoxy resin based on Bisphenol A



## ARALDITE F

## CY205

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
97	Magnet coil resin Orli-therm® (Base: DGEBA + MNA + other components)  BBC Baden	0	97.1 ± 16.7	5.8 ± 1.7	3.53 ± 0.11 × 10 <sup>3</sup>
		5.6 × 10 <sup>6</sup>	64.7 ± 10.8	3.6 ± 0.6	3.51 ± 0.06 × 10 <sup>3</sup>
		1.1 × 10 <sup>7</sup>	52.9 ± 14.7	3.0 ± 0.8	3.55 ± 0.13 × 10 <sup>3</sup>
		2.2 × 10 <sup>7</sup>	39.2 ± 6.8	2.0 ± 0.4	3.75 ± 0.15 × 10 <sup>3</sup>
		5.6 × 10 <sup>7</sup>	7.9 ± 1.0	1.0 ± 0.1	2.26 ± 0.21 × 10 <sup>3</sup>
99	Magnet coil resin Orli-therm® reinforced with fibre-silanized woven glass tape type 1 and mica-paper tape  BBC Baden	0	224.6 ± 11.7	5.0 ± 0.5	2.96 ± 0.74 × 10 <sup>4</sup>
		1.1 × 10 <sup>7</sup>	191.3 ± 2.9	5.2 ± 0.4	7.99 ± 0.54 × 10 <sup>3</sup>
		3.1 × 10 <sup>7</sup>	130.4 ± 5.9	4.6 ± 0.5	8.00 ± 0.50 × 10 <sup>3</sup>
		6.3 × 10 <sup>7</sup>	84.4 ± 14.7	3.9 ± 0.5	5.85 ± 0.49 × 10 <sup>3</sup>
		1.0 × 10 <sup>8</sup>	54.9 ± 1.9	3.2 ± 0.2	4.59 ± 1.01 × 10 <sup>3</sup>
131	ARALDITE F(100) + MNA(80) + DMNA(0.5) + filler  Rutherford Workshop	0	312.9 ± 2.9	9.0 ± 0.3	1.57 ± 0.05 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	287.4 ± 11.8	8.9 ± 0.1	1.45 ± 0.02 × 10 <sup>4</sup>
		2 × 10 <sup>7</sup>	301.2 ± 8.8	10.2 ± 0.3	1.51 ± 0.02 × 10 <sup>4</sup>
		5 × 10 <sup>7</sup>	222.7 ± 2.9	9.8 ± 0.4	1.09 ± 0.05 × 10 <sup>4</sup>
132	ARALDITE F + MNA + filler  LINTOTT	0	436.5 ± 55.9	6.8 ± 0.8	2.42 ± 0.07 × 10 <sup>4</sup>
		5 × 10 <sup>6</sup>	392.4 ± 28.5	6.3 ± 0.5	2.24 ± 0.13 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	402.2 ± 54.0	6.8 ± 1.0	2.19 ± 0.22 × 10 <sup>4</sup>
		2 × 10 <sup>7</sup>	365.9 ± 53.0	6.4 ± 0.6	2.35 ± 0.22 × 10 <sup>4</sup>
		5 × 10 <sup>7</sup>	230.5 ± 17.7	5.1 ± 0.8	1.74 ± 0.08 × 10 <sup>4</sup>
149	CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0.5) 40 h 75 °C  CIBA-GEIGY	0	71.6 ± 0.98	8.4 ± 0.4	2.12 ± 0.05 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	49.6 ± 30.4	6.2 ± 5.3	2.14 ± 0.05 × 10 <sup>3</sup>
		1 × 10 <sup>7</sup>	56.9 ± 3.9	5.2 ± 0.5	2.18 ± 0.01 × 10 <sup>3</sup>
		3 × 10 <sup>7</sup>	samples broken after irradiation		
150	CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0.5) + Silica 40 h 75 °C  CIBA-GEIGY	0	83.4 ± 2.9	2.4 ± 0.3	8.36 ± 0.37 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	56.9 ± 4.9	1.1 ± 0.1	9.98 ± 0.39 × 10 <sup>3</sup>
		1 × 10 <sup>7</sup>	42.2 ± 3.9	0.9 ± 0.1	9.40 ± 0.29 × 10 <sup>3</sup>
		3 × 10 <sup>7</sup>	samples broken after irradiation		

# ARALDITE F

## CY205

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
151	CY 205(100) + HY 964(130) + + DY 040(20) + DY 064(0.5) + + Dolomite 40 h 75°C CIBA-GEIGY	0	40.2 ± 1.9	1.2 ± 0.4	7.53 ± 0.55 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	50.0 ± 3.9	1.2 ± 0.1	8.10 ± 0.38 × 10 <sup>3</sup>
		1 × 10 <sup>7</sup>	23.5 ± 3.9	1.2 ± 0.0	3.90 ± 0.67 × 10 <sup>3</sup>
		3 × 10 <sup>7</sup>	9.8 ± 2.9	0.7 ± 0.0	3.12 ± 0.83 × 10 <sup>3</sup>
169	CY 205(100) + HY 905(100) + + DY 040(10) + Silica(400) + + DY 061(1) CIBA-GEIGY	0	51.0 ± 3.9	1.4 ± 0.1	1.02 ± 0.02 × 10 <sup>4</sup>
		5 × 10 <sup>6</sup>	50.0 ± 2.0	1.3 ± 0.0	1.27 ± 0.25 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	29.4 ± 2.0	0.9 ± 0.1	1.10 ± 0.07 × 10 <sup>4</sup>
		5 × 10 <sup>7</sup>	27.8 ± 4.9	1.1 ± 0.1	8.13 ± 1.20 × 10 <sup>3</sup>
170	CY 205(100) + HY 905(100) + + DY 040(10) + Dolomite(400) + + DY 061(1) CIBA-GEIGY	0	55.9 ± 3.9	1.4 ± 0.1	1.06 ± 0.03 × 10 <sup>4</sup>
		5 × 10 <sup>6</sup>	51.0 ± 3.9	1.4 ± 0.1	1.02 ± 0.02 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	51.0 ± 1.0	1.6 ± 0.0	9.38 ± 0.56 × 10 <sup>3</sup>
		5 × 10 <sup>7</sup>	32.4 ± 4.9	1.6 ± 0.1	5.40 ± 0.42 × 10 <sup>3</sup>
172	CY 205(100) + HY 905(110) + + CY 208(10) + XB 2687(0.8) CIBA-GEIGY	0	93.2 ± 14.7	8.3 ± 1.8	1.60 ± 0.01 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	48.1 ± 2.9	6.7 ± 0.4	1.49 ± 0.03 × 10 <sup>3</sup>
		1 × 10 <sup>7</sup>	60.8 ± 12.7	4.9 ± 0.9	3.37 ± 0.10 × 10 <sup>3</sup>
		3 × 10 <sup>7</sup>	samples broken after irradiation		
175	Magnet coil resin Orlitherm® reinforced with a fibre-silanized woven glass tape type 1 12 h 165 °C BBC Baden	0	510.1 ± 11.8	5.2 ± 0.1	1.91 ± 0.07 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	364.9 ± 5.9	4.2 ± 0.4	1.91 ± 0.01 × 10 <sup>4</sup>
		5 × 10 <sup>7</sup>	285.5 ± 13.7	3.4 ± 0.2	1.85 ± 0.06 × 10 <sup>4</sup>
		1 × 10 <sup>8</sup>	169.7 ± 22.6	2.7 ± 0.4	1.56 ± 0.14 × 10 <sup>4</sup>
176	Magnet coil resin Orlitherm® reinforced with glass woven tape type 2 with a special silane finish 12 h 165 °C BBC Baden	0	450.3 ± 24.5	5.2 ± 0.3	1.64 ± 0.07 × 10 <sup>4</sup>
		1 × 10 <sup>7</sup>	419.9 ± 18.6	5.0 ± 0.1	1.62 ± 0.05 × 10 <sup>4</sup>
		5 × 10 <sup>7</sup>	387.5 ± 55.9	5.2 ± 0.5	1.61 ± 0.01 × 10 <sup>4</sup>
		1 × 10 <sup>8</sup>	281.5 ± 28.5	4.9 ± 0.3	1.44 ± 0.01 × 10 <sup>4</sup>
202	ARALDITE F(100) + HY 905(100) + DY 040(10) + DY 062(0.5) 4 h 80 °C + 6 h 120 °C CIBA-GEIGY	0	121.6 ± 8.8	12.6 ± 4.4	3.71 ± 0.26 × 10 <sup>3</sup>
		5 × 10 <sup>6</sup>	88.3 ± 9.8	4.6 ± 0.4	3.80 ± 0.16 × 10 <sup>3</sup>
		1 × 10 <sup>7</sup>	70.6 ± 11.8	3.7 ± 0.6	3.75 ± 0.10 × 10 <sup>3</sup>

**ARALDITE F  
CY205**

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
223	ARALDITE F(200) + HT 972(54) 4 h 80 °C CERN Workshop	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	too flexible for testing $119.7 \pm 7.8$ $100.0 \pm 4.9$ $21.6 \pm 11.8$	$14.7 \pm 0.5$ $4.9 \pm 0.3$ $1.0 \pm 0.5$	$3.57 \pm 0.09 \times 10^3$ $3.85 \pm 0.05 \times 10^3$ $4.04 \pm 0.29 \times 10^3$
224 (a)	ARALDITE F(200) + HT 972(54) 24 h 80 °C CERN Workshop	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	too flexible for testing $131.5 \pm 0.0$ $105.0 \pm 20.6$ broken	$12.5 \pm 1.2$ $6.8 \pm 3.9$	$3.56 \pm 0.08 \times 10^3$ $3.82 \pm 0.23 \times 10^3$
225 (a)	ARALDITE F(200) + HT 972(54) 4 h 100 °C CERN Workshop	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	too flexible for testing $137.3 \pm 2.0$ $118.7 \pm 29.4$ broken	$12.2 \pm 0.6$ $7.4 \pm 4.1$	$3.63 \pm 0.09 \times 10^3$ $3.88 \pm 0.05 \times 10^3$
226	ARALDITE F(200) + HT 972(54) 24 h 100 °C CERN Workshop	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	$130.5 \pm 4.0$ $136.4 \pm 3.9$ $132.4 \pm 9.8$ broken	$10.9 \pm 0.8$ $11.9 \pm 0.2$ $10.4 \pm 2.6$	$3.07 \pm 0.05 \times 10^3$ $3.80 \pm 0.11 \times 10^3$ $3.74 \pm 0.03 \times 10^3$
227	ARALDITE F(200) + HT 972(54) 4 h 120 °C CERN Workshop	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	$125.6 \pm 1.6$ $140.3 \pm 15.7$ $128.5 \pm 6.9$ broken	$12.3 \pm 1.9$ $13.8 \pm 0.9$ $13.4 \pm 1.7$	$3.02 \pm 0.12 \times 10^3$ $3.58 \pm 0.05 \times 10^3$ $3.61 \pm 0.08 \times 10^3$
228	ARALDITE F(200) + HT 972(54) 24 h 120 °C CERN Workshop	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	$110.8 \pm 1.6$ $131.5 \pm 7.8$ $136.4 \pm 14.7$ broken	$9.0 \pm 0.3$ $13.8 \pm 1.0$ $11.3 \pm 5.2$	$3.01 \quad 0.07 \quad 10^3$ $3.54 \quad 0.25 \quad 10^3$ $3.60 \quad 0.07 \quad 10^3$
241 (a)	CY 205(100) + HY 906(80) + + DY 064(1) 3 h 150 °C + 15 h 180 °C CIBA-GEIGY	0	$120.5 \pm 27.9$	$8.7 \pm 2.9$	$3.18 \pm 0.06 \times 10^3$

(a) No graph.

**ARALDITE F**  
**CY205**

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
242 (a)	CY 205(100) + HY 905(100) + + DY 061(0.5) 12 h 90 °C CIBA-GEIGY	0	114.0 ± 15.2	5.8 ± 0.9	3.86 ± 0.09 × 10 <sup>3</sup>
252 (a)	CY 205 + HY 905 + DY 040 + + DY 061 CIBA-GEIGY	0	103.3 ± 3.4	5.7 ± 0.3	3.64 ± 0.16 × 10 <sup>3</sup>
275	Magnet coil resin Orlitherm® reinforced with glass woven tape type 2 with a special silane finish and mica-paper tape 5 h 135 °C + 6 h 160 °C BBC Baden	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	264.9 ± 9.8 215.8 ± 14.7 227.6 ± 10.8 64.7 ± 0.0	1.8 ± 0.1 5.1 ± 0.4 5.5 ± 0.3 4.5 ± 0.0	2.56 ± 0.07 × 10 <sup>4</sup> 6.82 ± 0.50 × 10 <sup>3</sup> 6.84 ± 0.44 × 10 <sup>3</sup> 1.80 ± 0.00 × 10 <sup>3</sup>
276	Magnet coil resin Orlitherm® reinforced with a fibre-silanized woven glass tape type 3 5 h 135 °C + 6 h 160 °C BBC Baden	0 $5 \times 10^6$ $5 \times 10^7$	563.1 ± 25.5 467.9 ± 58.9 259.0 ± 28.5	4.8 ± 0.2 4.5 ± 0.1 3.2 ± 0.0	2.22 ± 0.14 × 10 <sup>4</sup> 2.15 ± 0.29 × 10 <sup>4</sup> 1.76 ± 0.15 × 10 <sup>4</sup>
277	Magnet coil resin Orlitherm® reinforced with a fibre-silanized woven glass tape type 3 and mica-paper tape 5 h 135 °C + 6 h 160 °C BBC Baden	0 $5 \times 10^6$ $5 \times 10^7$	223.7 ± 19.6 160.9 ± 11.8 38.3 ± 6.9	7.8 ± 0.4 7.9 ± 1.4 7.0 ± 0.3	6.02 ± 0.99 × 10 <sup>3</sup> 3.93 ± 0.13 × 10 <sup>3</sup> 7.02 ± 2.54 × 10 <sup>2</sup>
294 (a)	CERN 800 MeV Booster magnet coil resin CIBA-GEIGY	0	122.6 ± 32.7	2.8 ± 1.0	3.43 ± 0.04 × 10 <sup>3</sup>

(a) No graph.

## ARALDITE F

## CY205

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No.	Material and Supplier	Dose (Gy)	Ultimate flex. strength S (N/mm <sup>2</sup> )	Deflexion at break D (mm)	Modulus of elasticity M (N/mm <sup>2</sup> )
300	CY 205(100) + HY 905(100) + + DY 061(1) 8 h 80 °C + 8 h 130 °C CIBA-GEIGY	0 $5 \times 10^6$ $1 \times 10^7$ $2.5 \times 10^7$	$144.2 \pm 10.8$ $109.9 \pm 15.7$ $59.8 \pm 12.8$ $12.8 \pm 2.0$	$13.1 \pm 0.9$ $7.4 \pm 1.2$ $3.7 \pm 0.7$ $1.1 \pm 0.1$	$3.57 \pm 0.29 \times 10^3$ $3.93 \pm 0.10 \times 10^3$ $4.14 \pm 0.16 \times 10^3$ $3.22 \pm 0.16 \times 10^3$
301	CY 205(100) + HY 906(80) + + DY 064(1) 24 h 150 °C CIBA-GEIGY	0 $5 \times 10^6$ $1 \times 10^7$ $2.5 \times 10^7$ $5 \times 10^7$	$116.7 \pm 25.5$ $141.3 \pm 25.5$ $55.9 \pm 15.7$ $43.1 \pm 12.8$ $8.8 \pm 2.0$	$10.9 \pm 2.9$ $12.2 \pm 1.0$ $3.4 \pm 1.0$ $2.6 \pm 0.7$ $0.7 \pm 0.2$	$3.22 \pm 0.17 \times 10^3$ $3.67 \pm 0.09 \times 10^3$ $4.15 \pm 0.19 \times 10^3$ $4.21 \pm 0.25 \times 10^3$ $3.42 \pm 0.00 \times 10^3$
303	Magnet coil resin Orli- therm® reinforced with a sandwich tape built up of a fibre-silanized woven glass tape type 3 and a polyimide film 16 h 140 °C BBC Baden	0 $1 \times 10^7$ $5 \times 10^7$	$379.6 \pm 44.7$ $385.4 \pm 5.7$ $236.2 \pm 4.3$	$4.7 \pm 0.2$ $4.4 \pm 0.2$ $3.4 \pm 0.9$	$1.76 \pm 0.23 \times 10^4$ $1.96 \pm 0.02 \times 10^4$ $1.62 \pm 0.07 \times 10^4$
311	CY 205(100) + HY 906(80) + + DY 061(0.5) + Silica CIBA-GEIGY	0 $5 \times 10^6$ $1 \times 10^7$ $5 \times 10^7$	$96.1 \pm 2.9$ $67.7 \pm 1.96$ $64.5 \pm 3.9$ $30.6 \pm 0.98$	$1.6 \pm 0.0$ $1.4 \pm 0.1$ $1.3 \pm 0.1$ $0.6 \pm 0.0$	$9.28 \pm 0.09 \times 10^3$ $9.15 \pm 0.17 \times 10^3$ $9.16 \pm 0.16 \times 10^3$ $7.48 \pm 0.34 \times 10^3$
312	CY 205(100) + HY 906(80) + + DY 061(0.5) CIBA-GEIGY	0 $5 \times 10^6$ $1 \times 10^7$ $2.5 \times 10^7$	$64.9 \pm 5.9$ $68.7 \pm 5.9$ $50.0 \pm 2.9$ $32.6 \pm 7.8$	$3.0 \pm 0.2$ $2.9 \pm 0.3$ $2.0 \pm 0.1$ $1.3 \pm 0.3$	$3.35 \pm 0.07 \times 10^3$ $3.67 \pm 0.04 \times 10^3$ $3.81 \pm 0.08 \times 10^3$ $3.93 \pm 0.13 \times 10^3$



# ARALDITE F

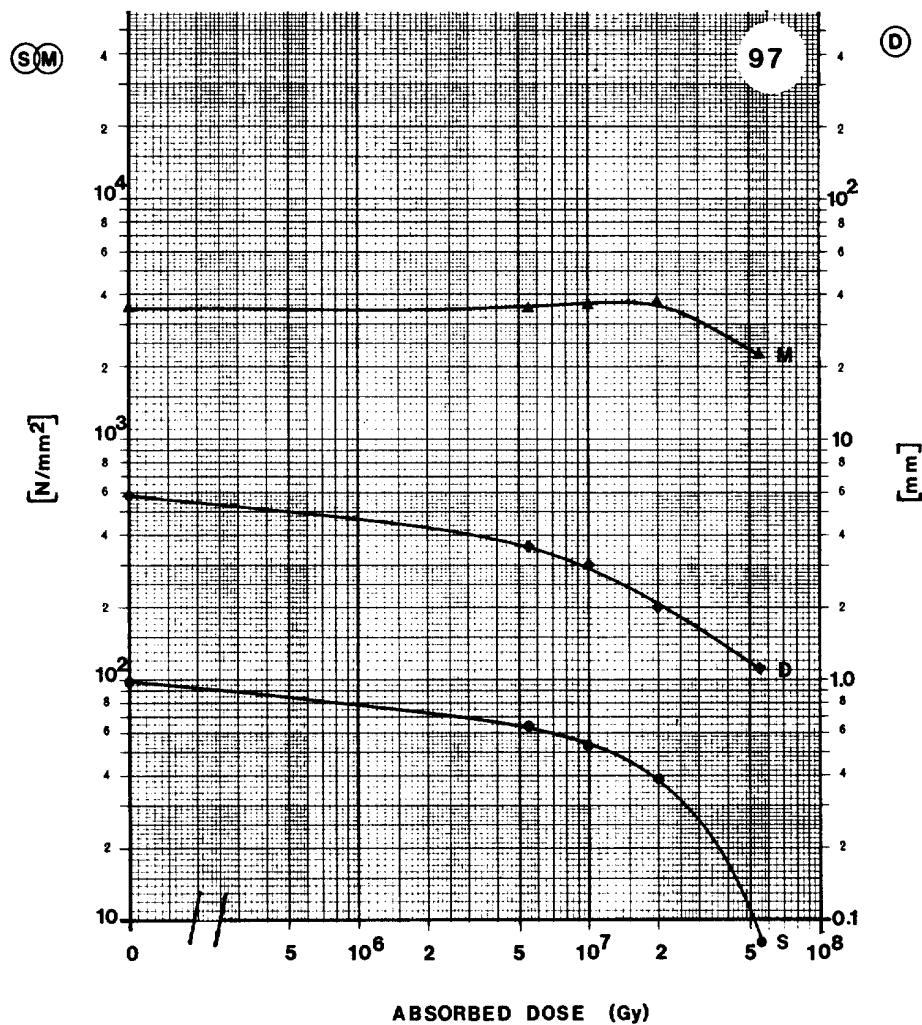
## CY205

- 45 -

**MATERIAL:** MAGNET COIL RESIN ORLITHERM®  
(BASE: DGEBA + MNA + OTHER COMPONENTS)

**SUPPLIER:** BBC BADEN

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	97.1 N/mm <sup>2</sup>
D	Deflexion at break	5.8 mm
M	Modulus of elasticity	3.5 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

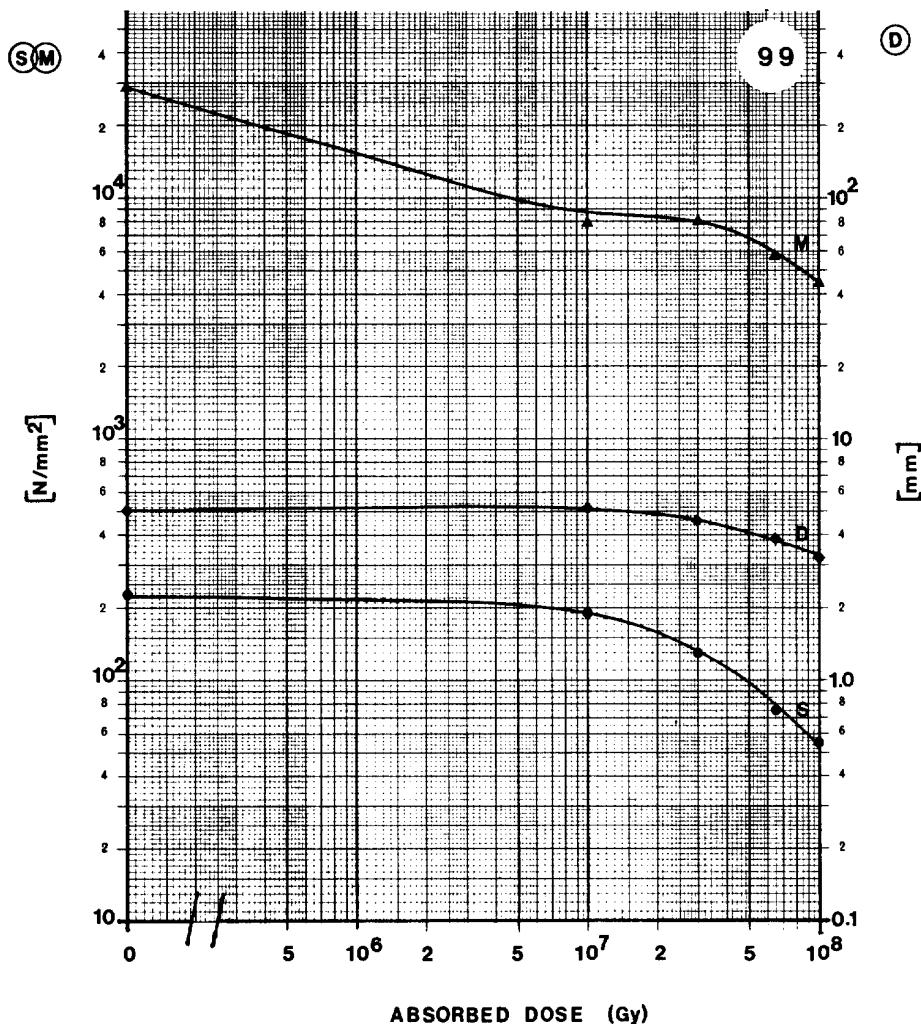
## CY205

- 46 -

**MATERIAL:** MAGNET COIL RESIN ORLITHERM® REINFORCED WITH FIBRE-SILANIZED WOVEN GLASS TAPE  
TYPE 1 AND MICA-PAPER TAPE

**SUPPLIER:** BBC BADEN

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	224.6 N/mm <sup>2</sup>
D	Deflexion at break	5.0 mm
M	Modulus of elasticity	2.9 × 10 <sup>4</sup> N/mm <sup>2</sup>

# ARALDITE F

## CY205

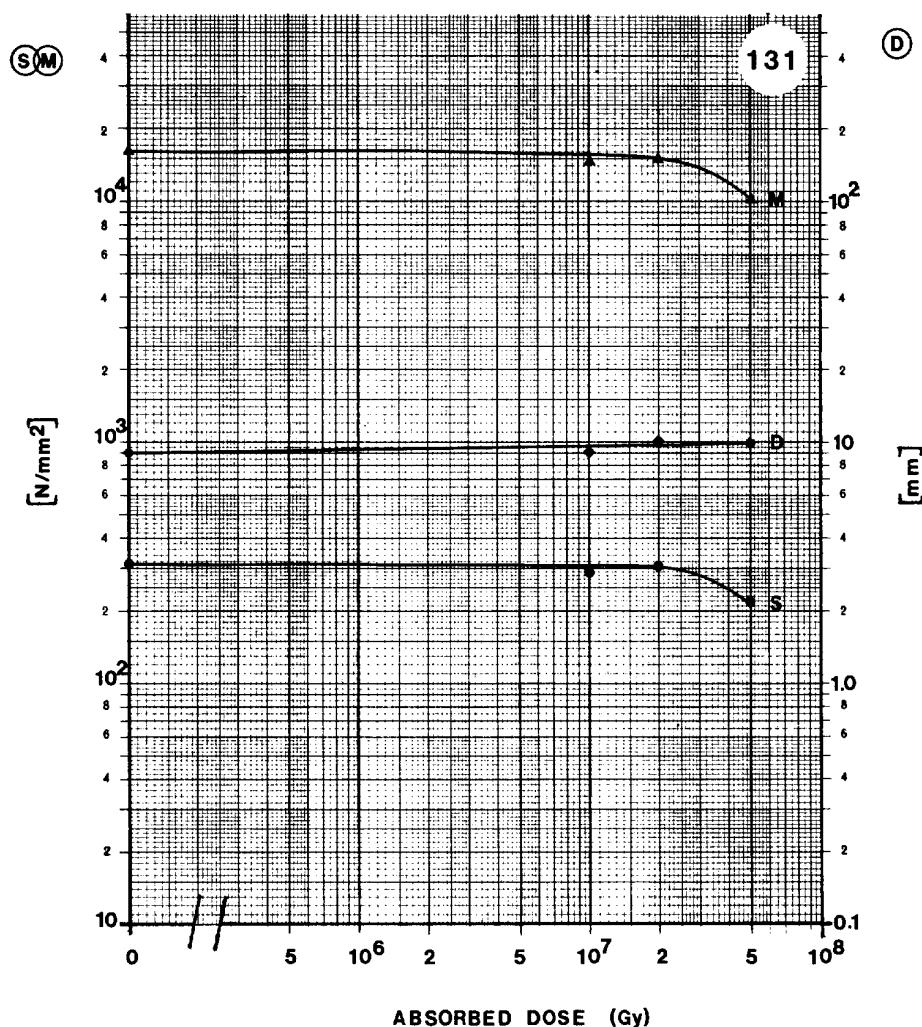
- 47 -

**MATERIAL:** CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0.5) + DOLOMIE

**MATERIAL:** ARALDITE F(100) + MNA(80) + DMNA(0.5) + FILLER

**SUPPLIER:** RUTHERFORD WORKSHOP

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	312.9 $\text{N/mm}^2$
D	Deflection at break	9.0 mm
M	Modulus of elasticity	$1.6 \times 10^4$ $\text{N/mm}^2$

# ARALDITE F

## CY205

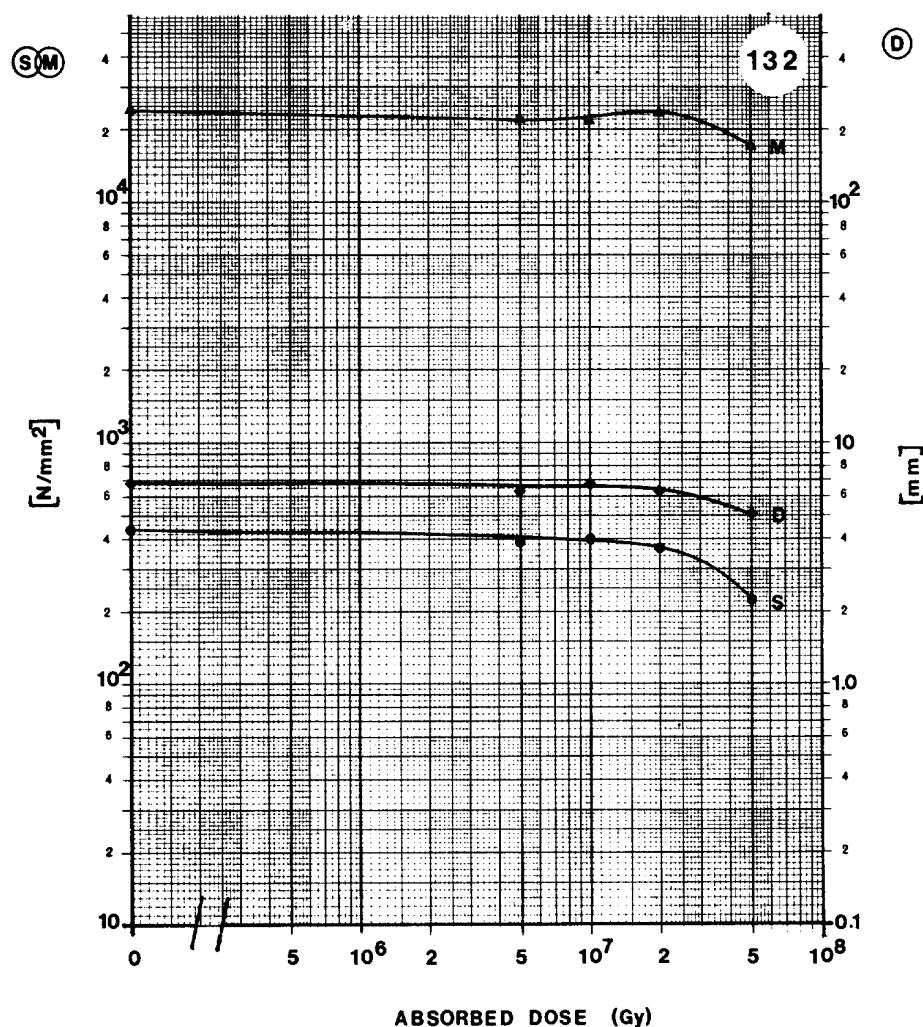
- 48 -

**MATERIAL:** CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0.5) + DOLOMIE

**MATERIAL:** ARALDITE F + MNA + FILLER

**SUPPLIER:** LINTOTT

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	436.5 N/mm <sup>2</sup>
D	Deflexion at break	6.8 mm
M	Modulus of elasticity	2.4 × 10 <sup>4</sup> N/mm <sup>2</sup>

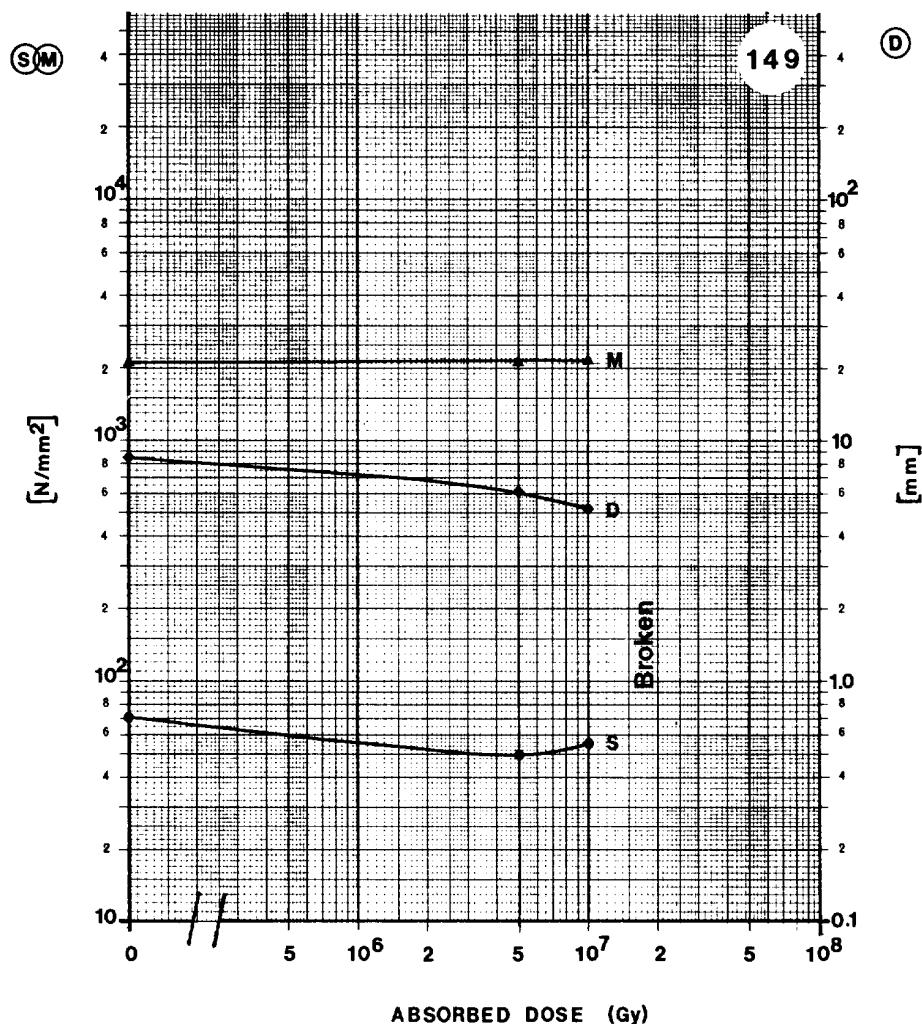
# ARALDITE F CY205

- 49 -

**MATERIAL:** CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0,5)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	71.6 N/mm <sup>2</sup>
D	Deflexion at break	8.4 mm
M	Modulus of elasticity	2.1 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

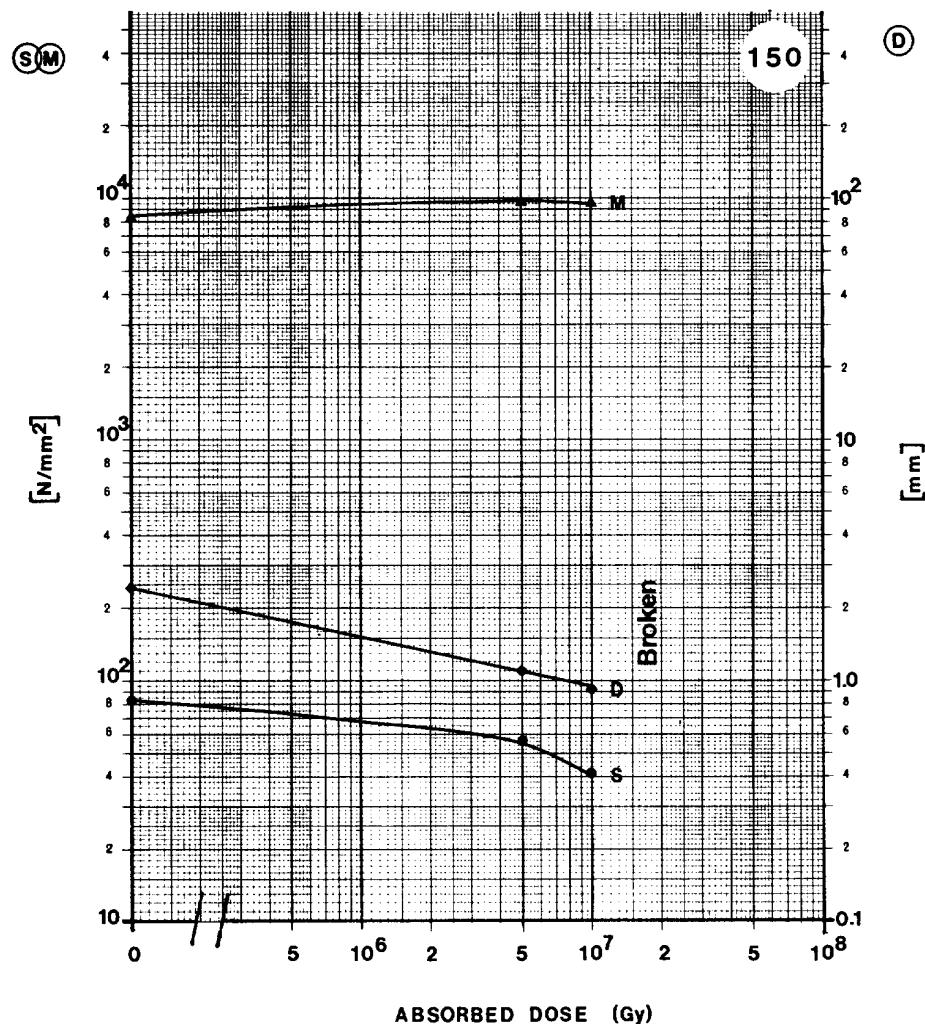
## CY205

- 50 -

**MATERIAL:** CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0.5) + SILICA

**SUPPLIER:** CIBA-GEIGY

**Remarks:** USED FOR SPS HIGH-VOLTAGE RESISTOR



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	83.4 N/mm <sup>2</sup>
D	Deflection at break	2.4 mm
M	Modulus of elasticity	8.4 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

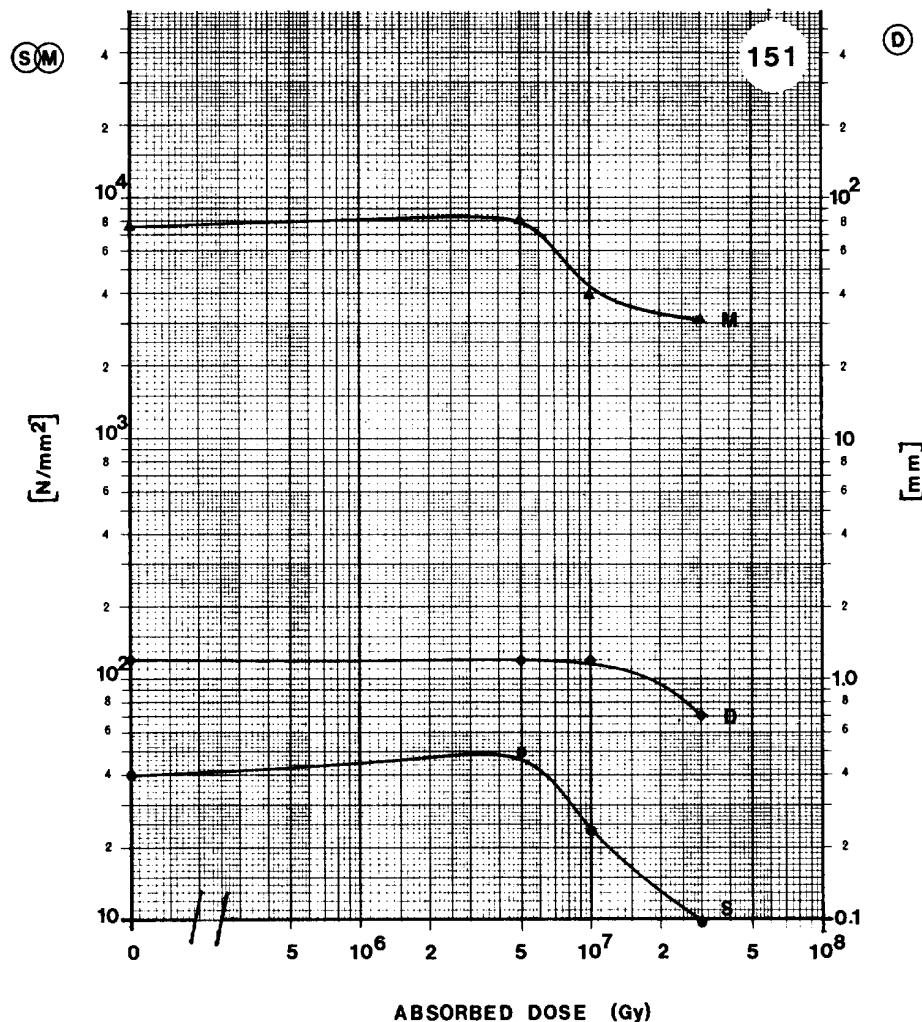
## CY205

- 51 -

**MATERIAL:** CY 205(100) + HY 964(130) + DY 040(20) + DY 064(0.5) + DOLomite

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	$40.2 \text{ N/mm}^2$
D	Deflexion at break	1.2 mm
M	Modulus of elasticity	$7.5 \times 10^3 \text{ N/mm}^2$

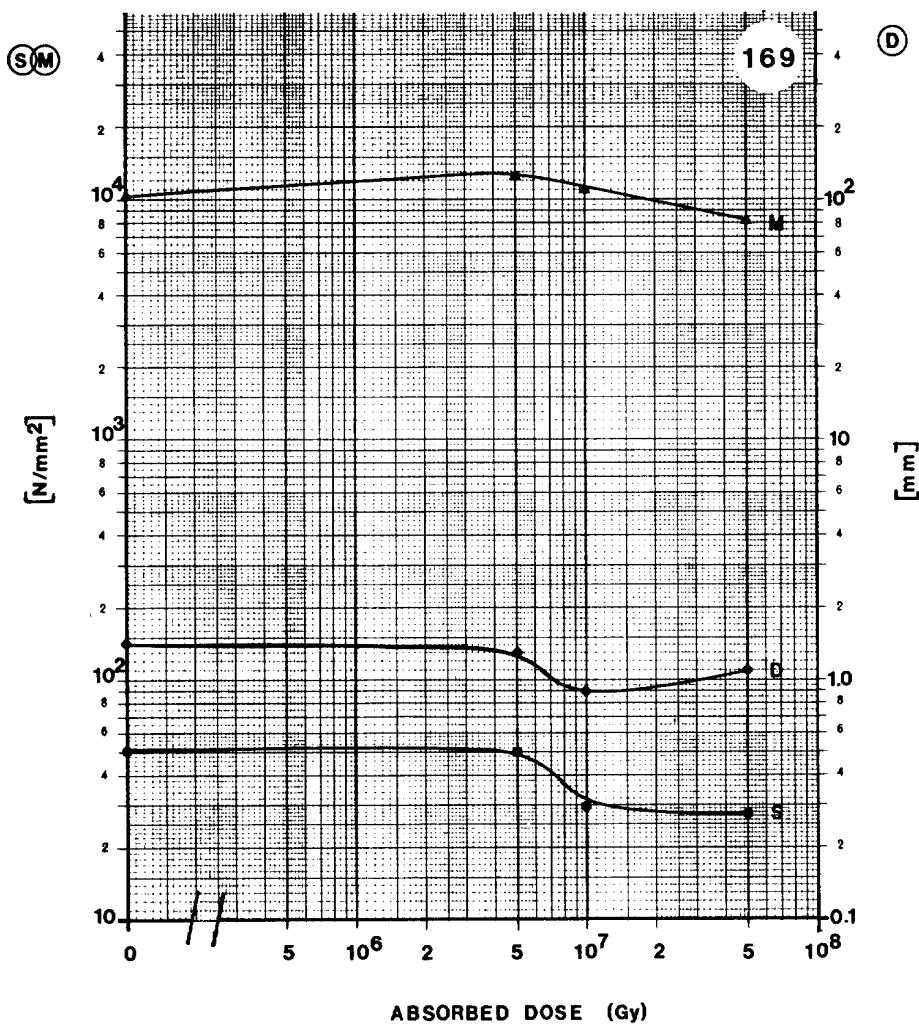
# ARALDITE F CY205

- 52 -

**MATERIAL:** CY 205(100) + HY 905(100) + DY 040(10) + SILICA(400) + DY 061(1)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	51.0 N/mm <sup>2</sup>
D	Deflexion at break	1.4 mm
M	Modulus of elasticity	1.0 × 10 <sup>4</sup> N/mm <sup>2</sup>

# ARALDITE F

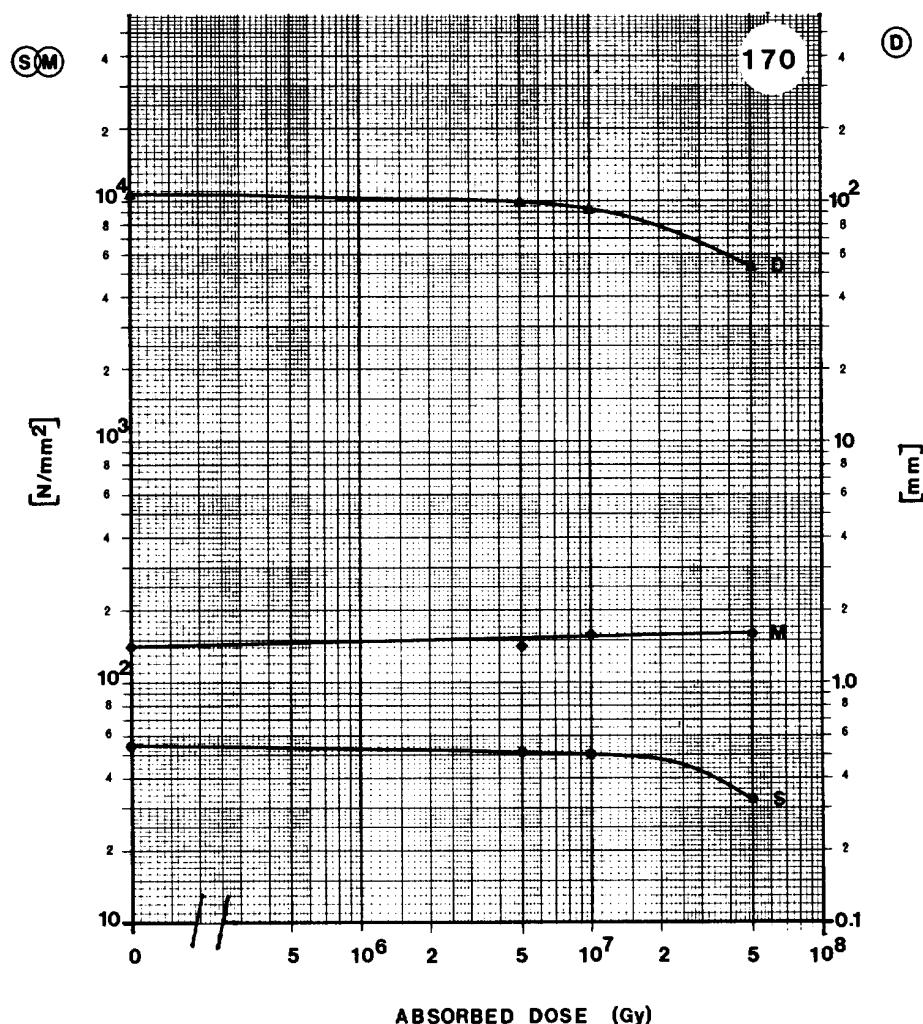
## CY205

- 53 -

**MATERIAL:** CY 205(100) + HY 905(100) + DY 040(10) + DOLomite(400) + DY 061(1)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	55.9 N/mm <sup>2</sup>
D	Deflexion at break	1.4 mm
M	Modulus of elasticity	1.1 × 10 <sup>4</sup> N/mm <sup>2</sup>

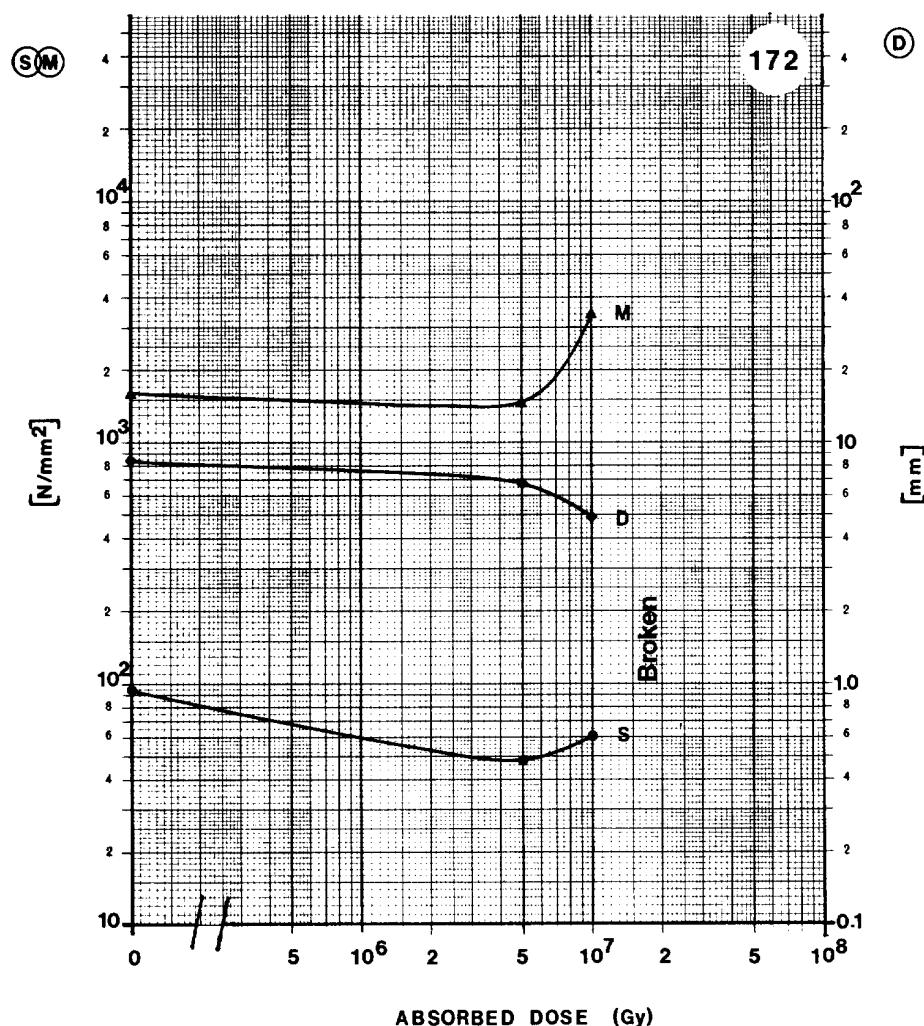
# ARALDITE F CY205

- 54 -

**MATERIAL:** CY 205(100) + HY 905(110) + CY 208(10) + XB 2687(0,8)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	93.2 N/mm <sup>2</sup>
D	Deflection at break	8.3 mm
M	Modulus of elasticity	1.6 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

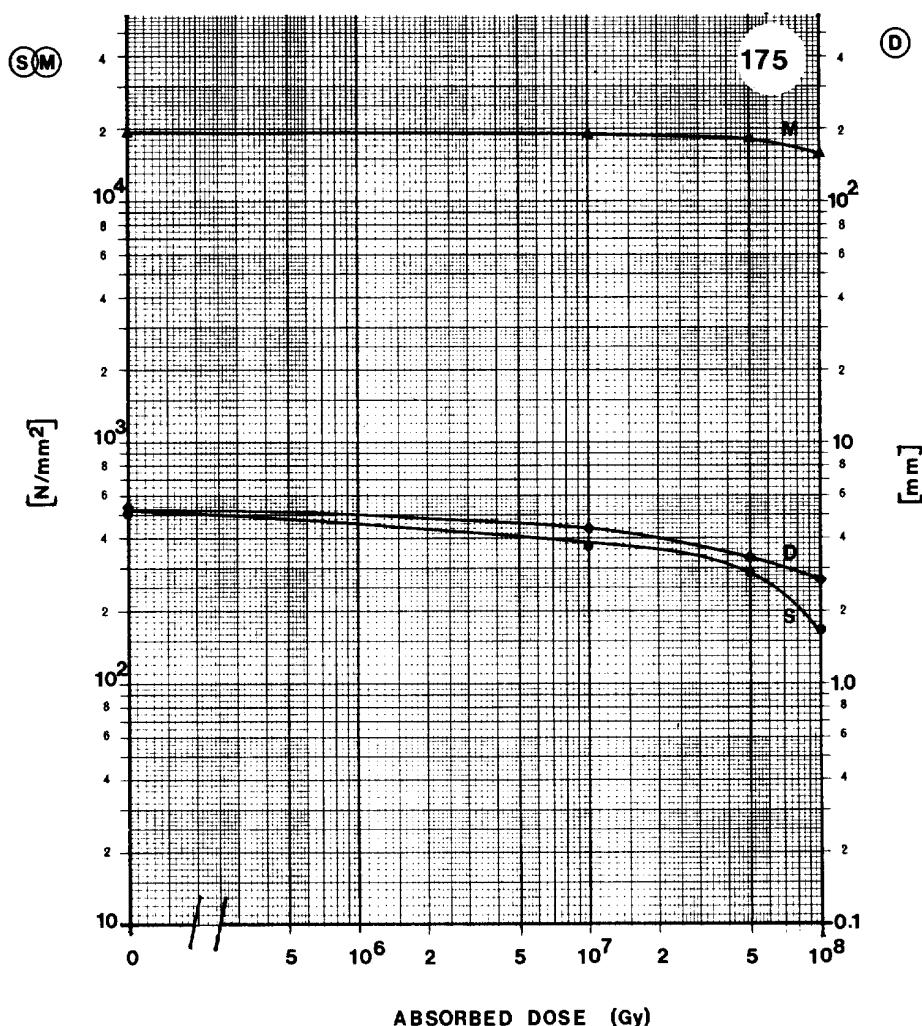
## CY205

- 55 -

**MATERIAL:** MAGNET COIL RESIN ORLITHERM® REINFORCED  
WITH A FIBRE-SILANIZED WOVEN GLASS TAPE TYPE 1

**SUPPLIER:** BBC BADEN

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	510.1 $N/mm^2$
D	Deflexion at break	5.2 mm
M	Modulus of elasticity	$1.9 \times 10^4 N/mm^2$

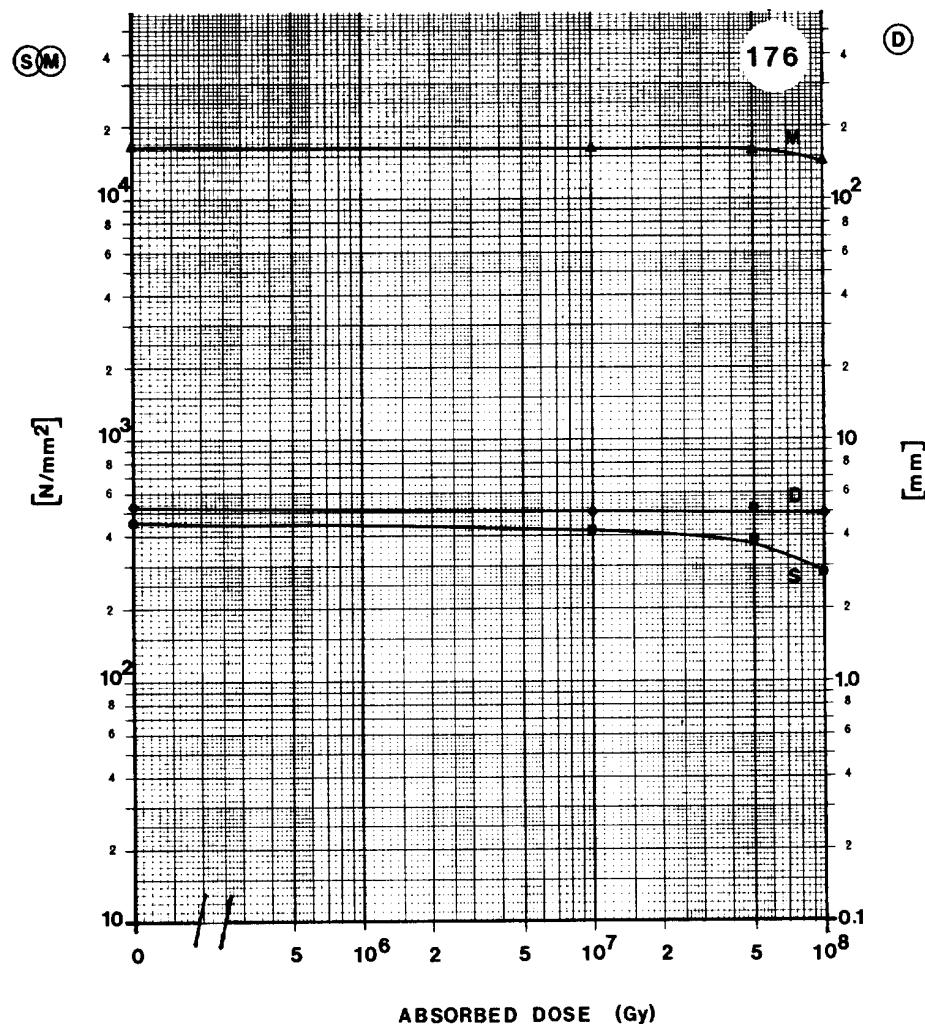
# ARALDITE F CY205

- 56 -

**MATERIAL:** MAGNET COIL RESIN ORLITHERM® REINFORCED WITH  
GLASS WOVEN TAPE TYPE 2 WITH A SPECIAL SILANE FINISH

**SUPPLIER:** BBC BADEN

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	450.3 N/mm <sup>2</sup>
D	Deflexion at break	5.2 mm
M	Modulus of elasticity	1.6 × 10 <sup>4</sup> N/mm <sup>2</sup>

# ARALDITE F

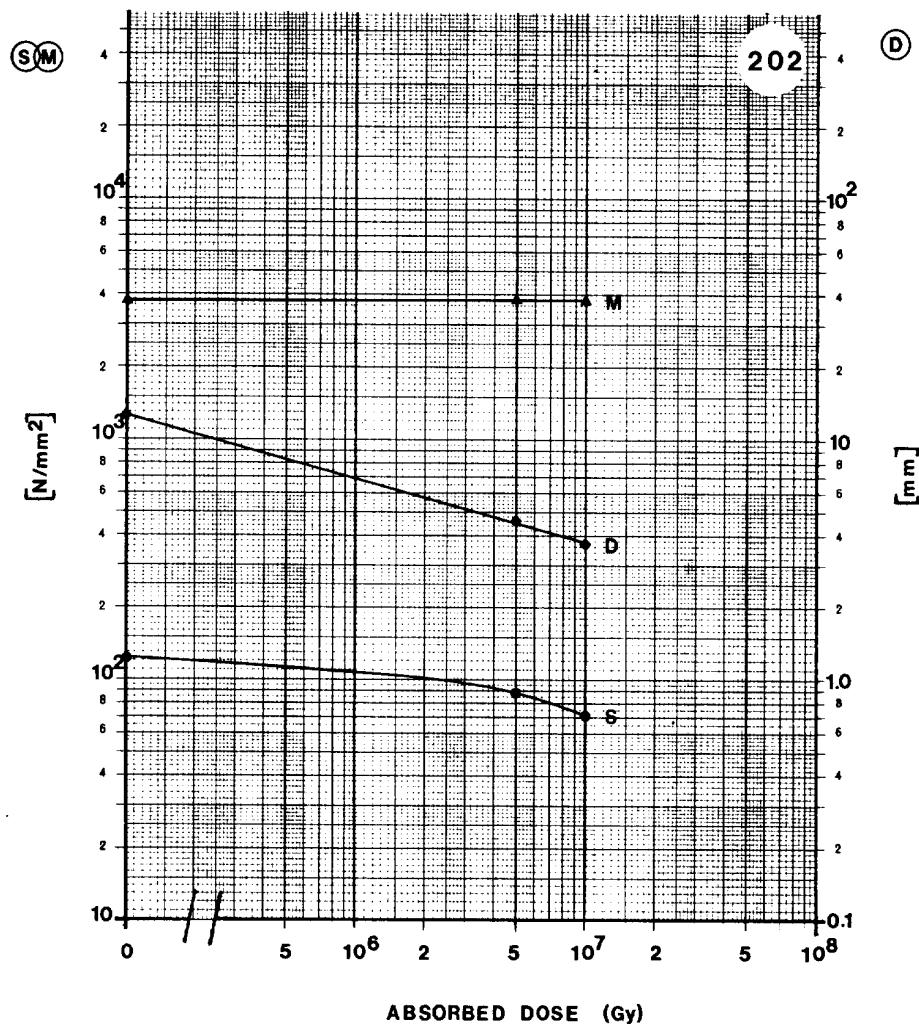
## CY205

- 57 -

**MATERIAL:** ARALDITE F(100) + HY 905(100) + DY 040(10) + DY 062(0,5)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	121.6 N/mm <sup>2</sup>
D	Deflexion at break	12.6 mm
M	Modulus of elasticity	3.7 $\times 10^3$ N/mm <sup>2</sup>

# ARALDITE F

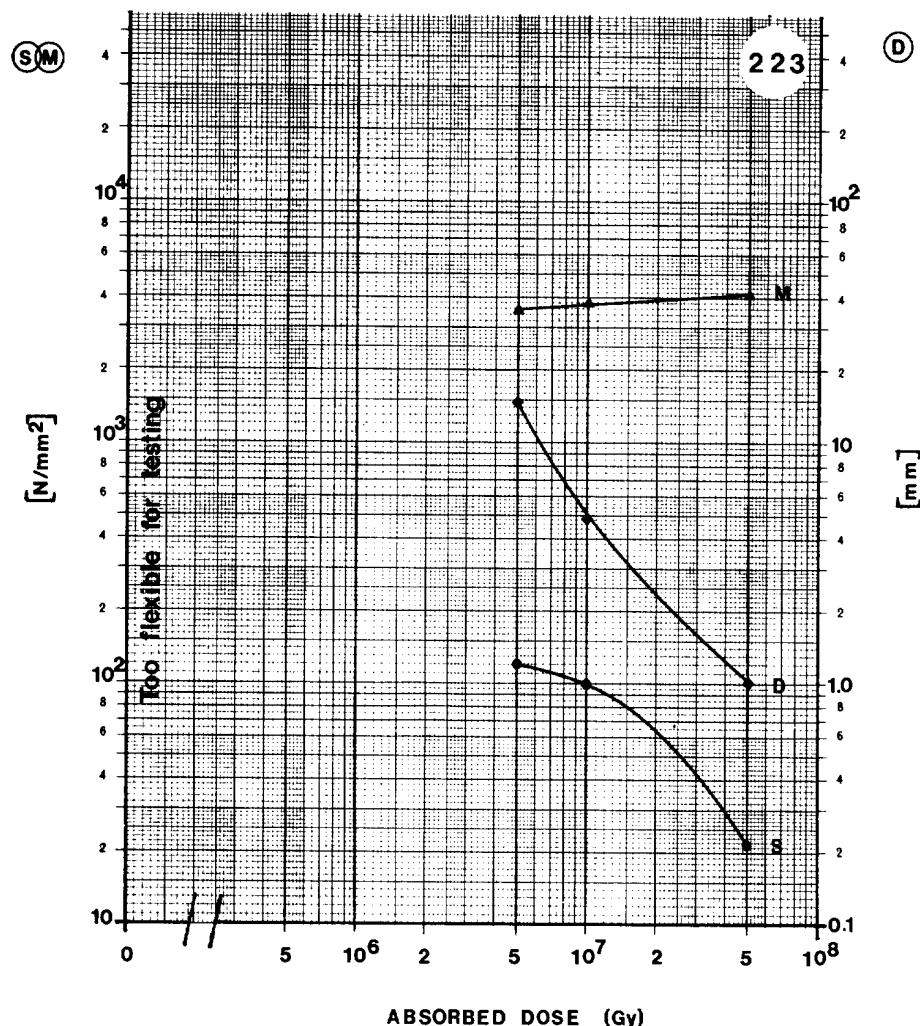
## CY205

- 58 -

**MATERIAL:** ARALDITE F(200) + HT 972(54)

**SUPPLIER:** CERN WORKSHOP

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	- N/mm <sup>2</sup>
D	Deflexion at break	- mm
M	Modulus of elasticity	- N/mm <sup>2</sup>

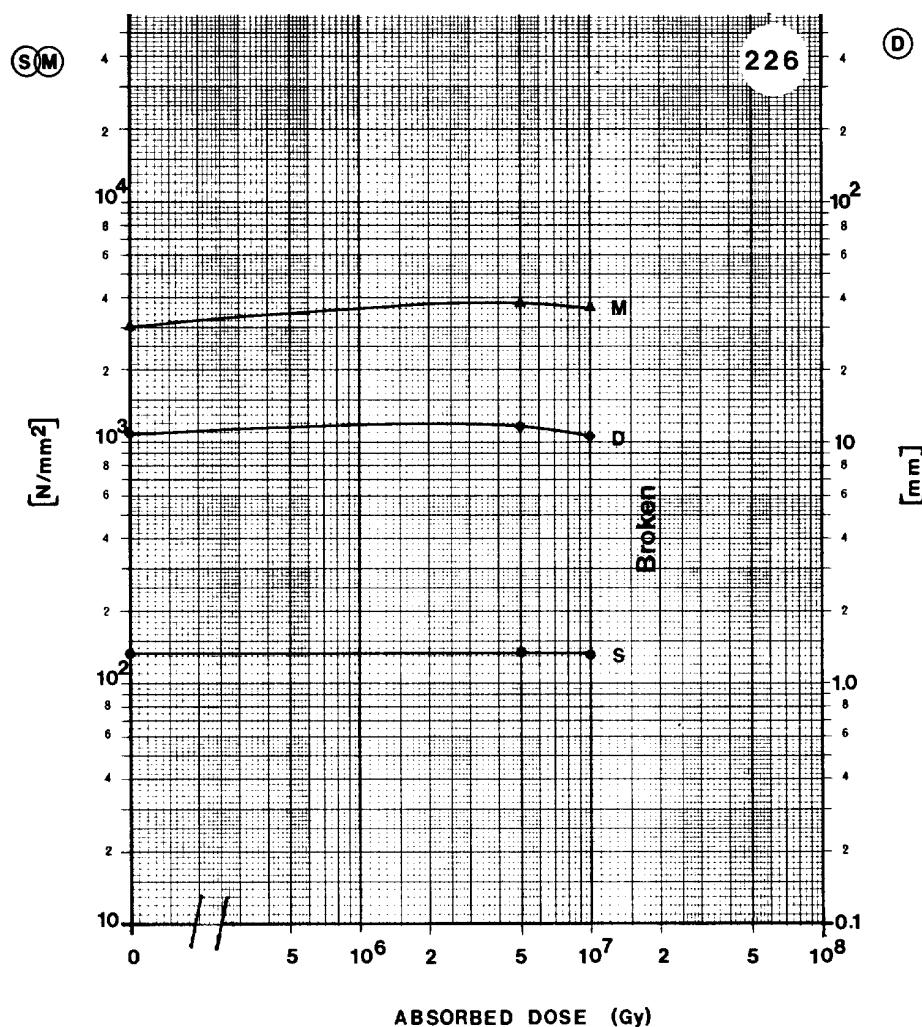
# ARALDITE F CY205

- 59 -

**MATERIAL:** ARALDITE F(200) + HT 972(54)

**SUPPLIER:** CERN WORKSHOP

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	130.5 $\text{N/mm}^2$
D	Deflection at break	10.9 mm
M	Modulus of elasticity	$3.1 \times 10^3 \text{ N/mm}^2$

# ARALDITE F

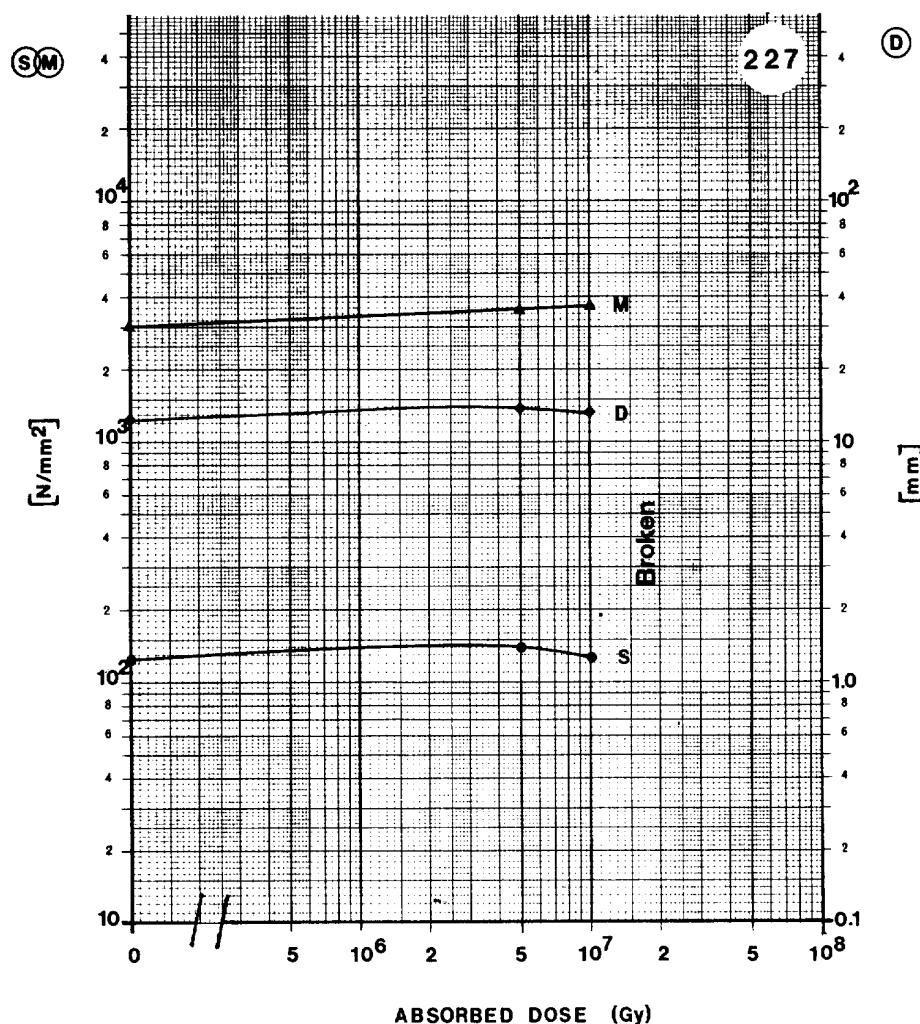
## CY205

- 60 -

**MATERIAL:** ARALDITE F(200) + HT 972(54)

**SUPPLIER:** CERN WORKSHOP

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	125.5 N/mm <sup>2</sup>
D	Deflexion at break	12.3 mm
M	Modulus of elasticity	3.0 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

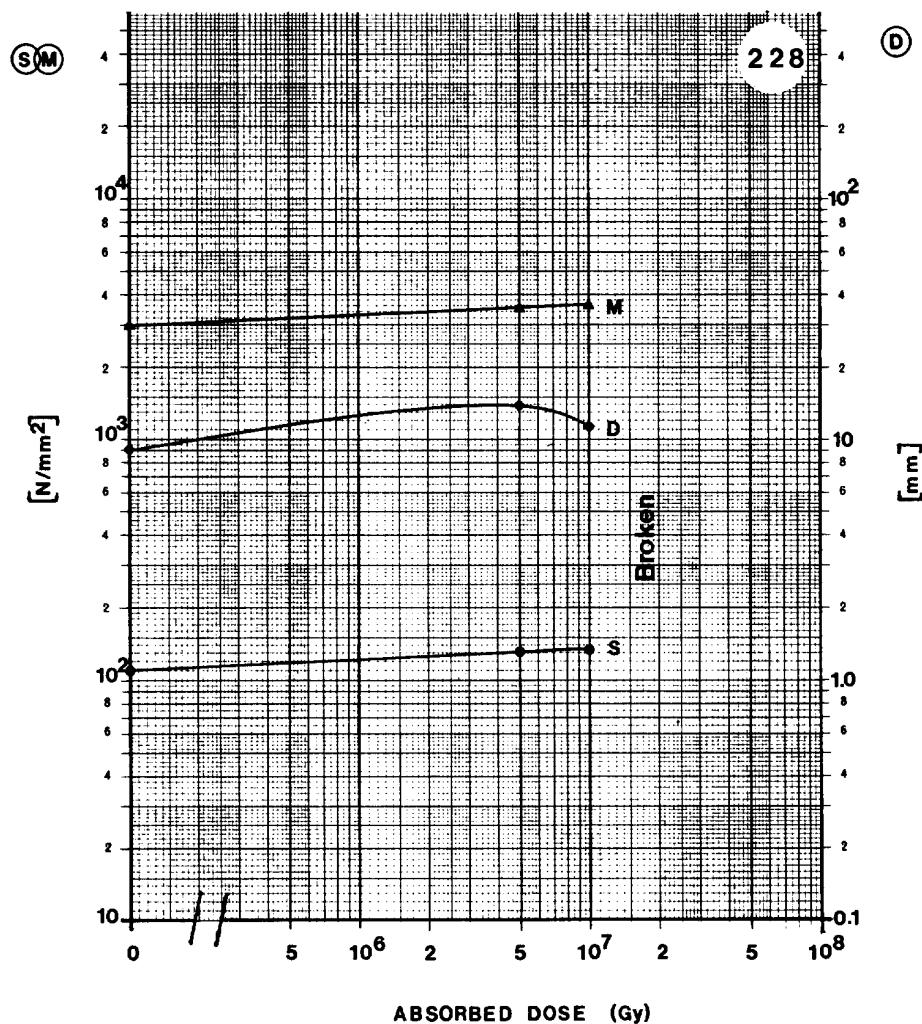
## CY205

- 61 -

**MATERIAL:** ARALDITE F(200) + HT 972(54)

**SUPPLIER:** CERN WORKSHOP

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	110.8 N/mm <sup>2</sup>
D	Deflexion at break	9.0 mm
M	Modulus of elasticity	3.0 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

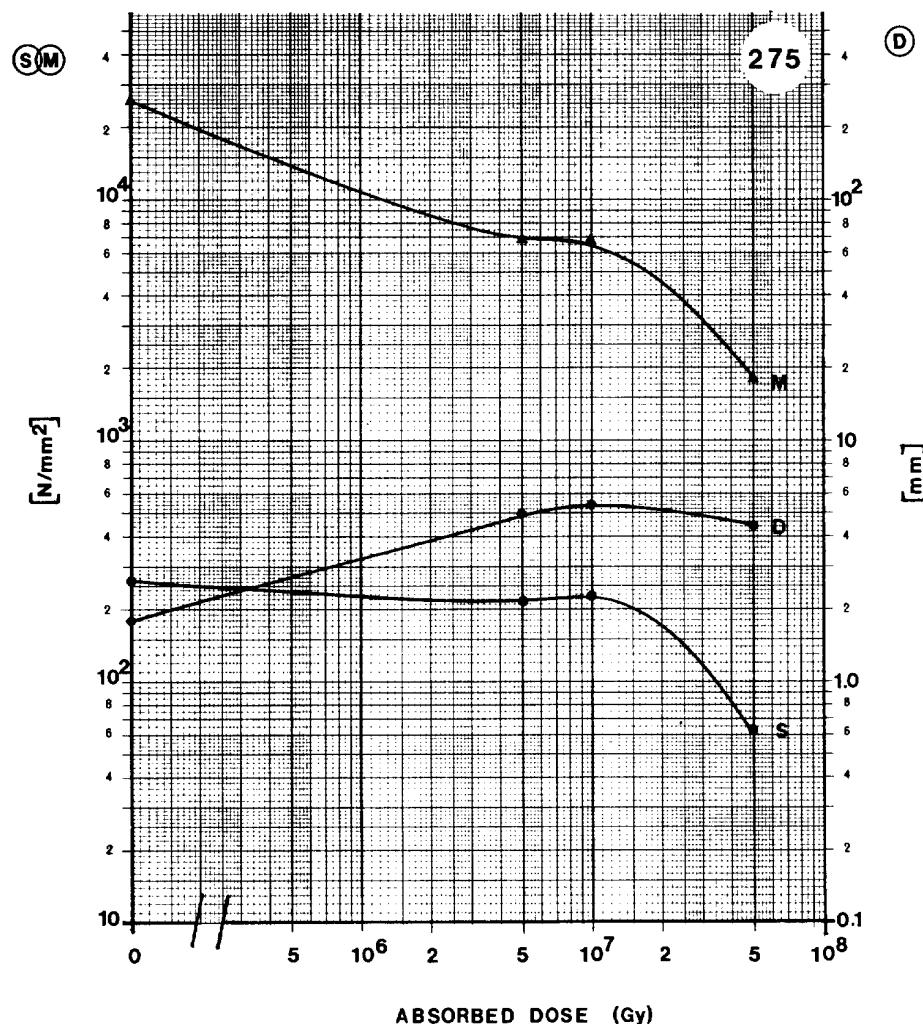
## CY205

- 62 -

**MATERIAL:** MAGNET COIL RESIN ORLITHERM® REINFORCED WITH  
GLASS WOVEN TAPE TYPE 2 WITH A SPECIAL SILANE  
FINISH AND MICA-PAPER TAPE

**SUPPLIER:** BBC BADEN

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	$264.9 N/mm^2$
D	Deflection at break	$1.8 mm$
M	Modulus of elasticity	$2.6 \times 10^4 N/mm^2$

# ARALDITE F

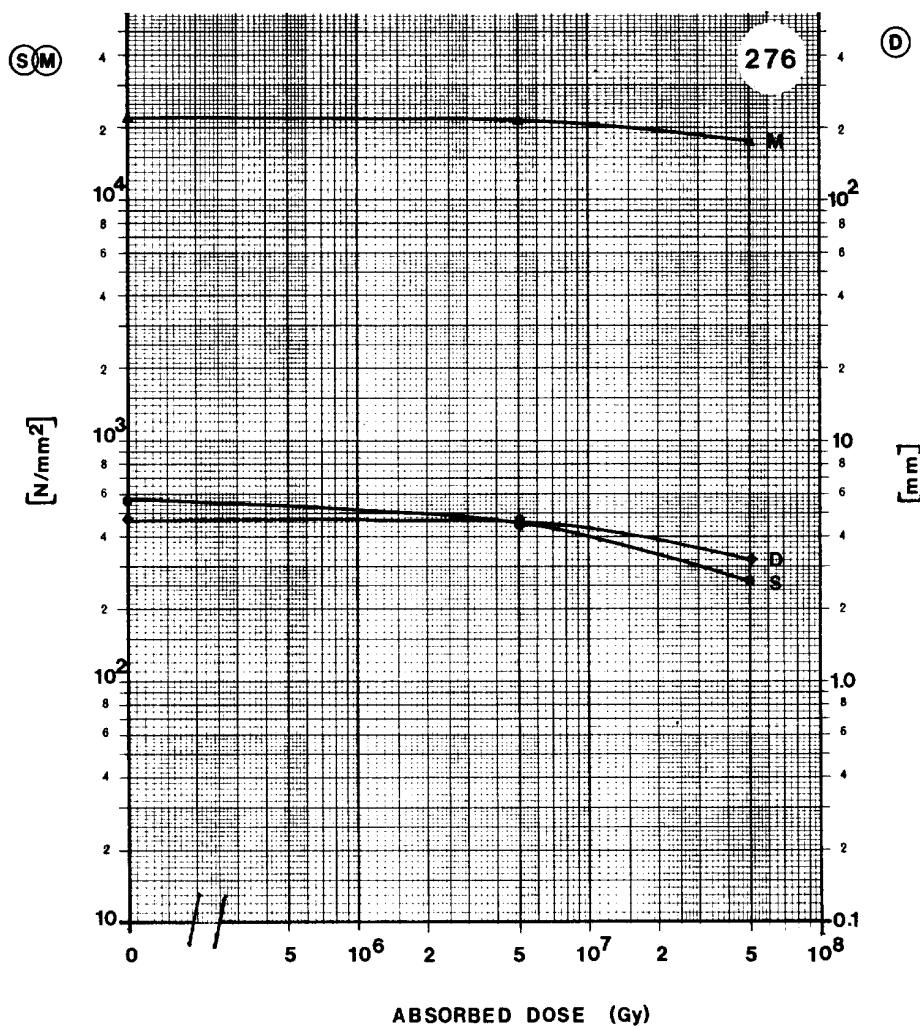
## CY205

- 63 -

**MATERIAL:** MAGNET COIL RESIN ORLITHERM® REINFORCED WITH  
A FIBRE-SILANIZED WOVEN GLASS TAPE TYPE 3

**SUPPLIER:** BBC BADEN

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	563.1 N/mm <sup>2</sup>
D	Deflexion at break	4.8 mm
M	Modulus of elasticity	2.2 × 10 <sup>4</sup> N/mm <sup>2</sup>

# ARALDITE F

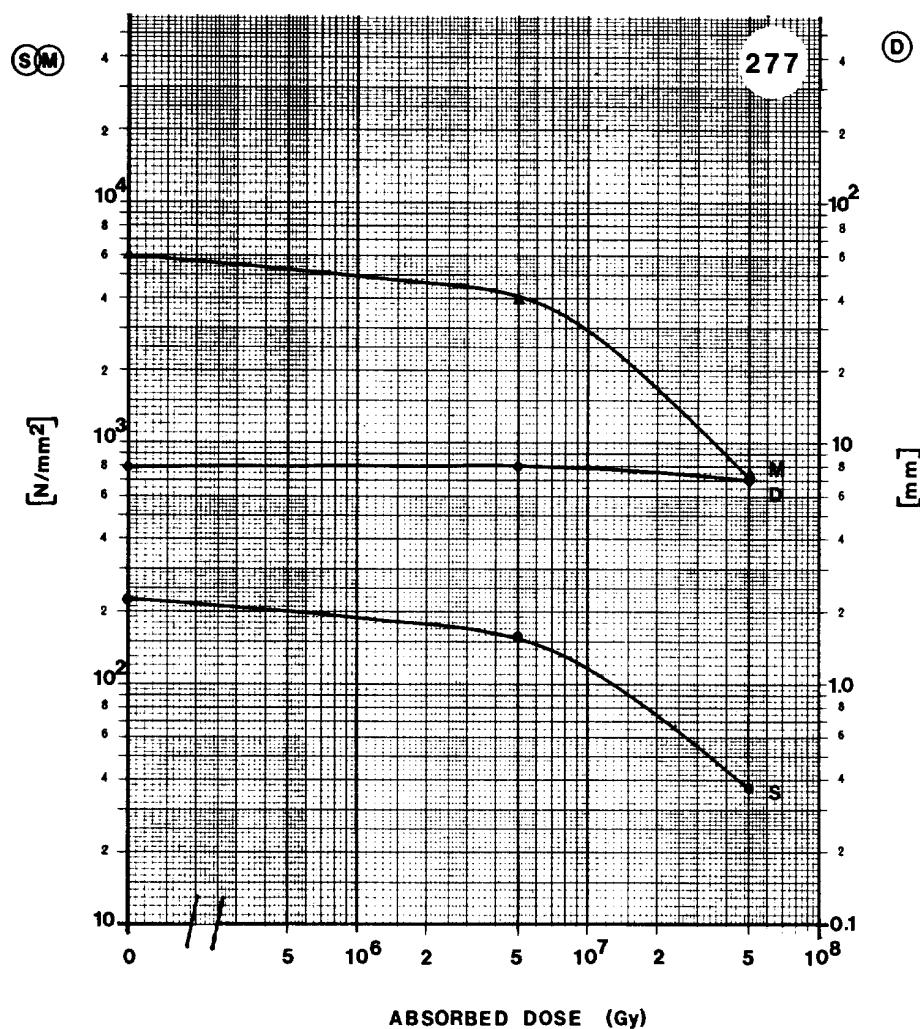
## CY205

- 64 -

MATERIAL: MAGNET COIL RESIN ORLITHERM® REINFORCED WITH  
A FIBRE-SILANIZED WOVEN GLASS TAPE TYPE 3 AND  
MICA-PAPER TAPE

SUPPLIER: BBC BADEN

Remarks:



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	223.7 N/mm <sup>2</sup>
D	Deflexion at break	7.8 mm
M	Modulus of elasticity	6.0 x 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

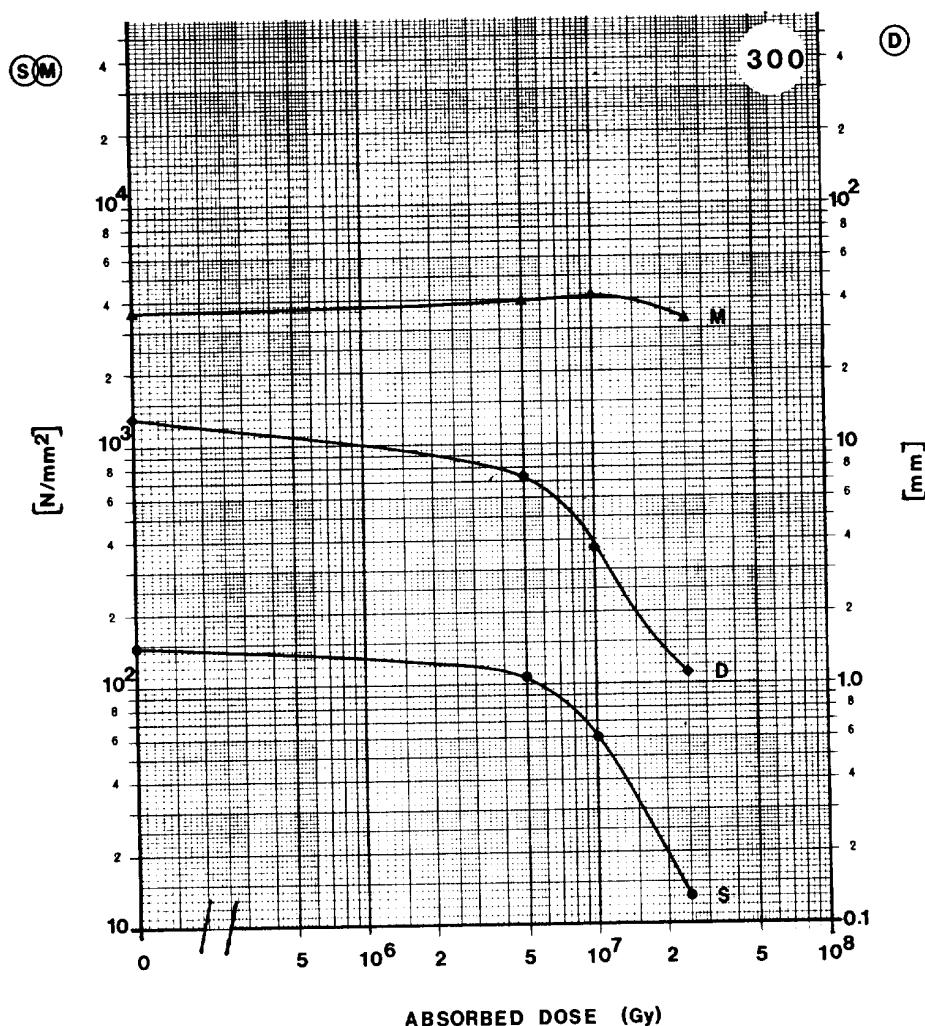
## CY205

- 65 -

**MATERIAL:** CY 205(100) + HY 905(100) + DY 061(1)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	144.2 N/mm <sup>2</sup>
D	Deflexion at break	13.1 mm
M	Modulus of elasticity	3.6 x 10 <sup>3</sup> N/mm <sup>2</sup>

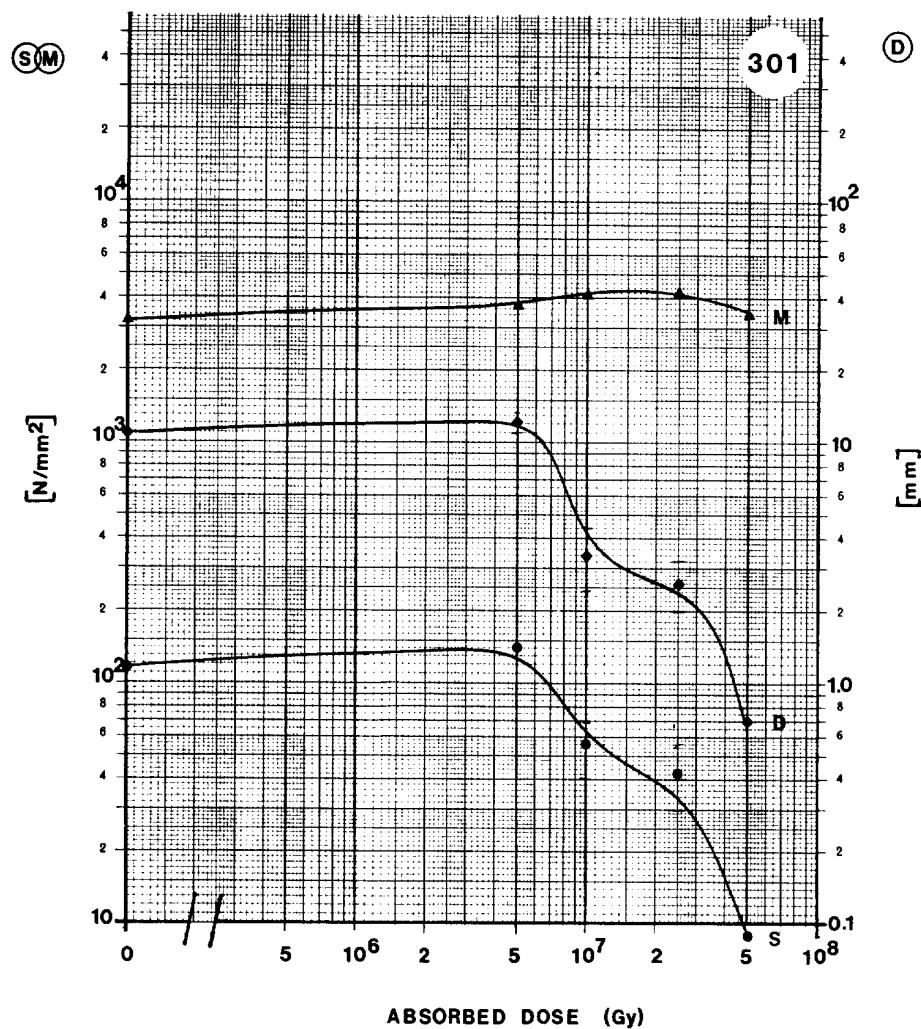
# ARALDITE F CY205

- 66 -

**MATERIAL:** CY 205(100) + HY 906(80) + DY 064(1)

**SUPPLIER:** CIBA-GEIGY

**Remarks:**



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	116.7 $\text{N/mm}^2$
D	Deflection at break	10.9 mm
M	Modulus of elasticity	$3.2 \times 10^3 \text{ N/mm}^2$

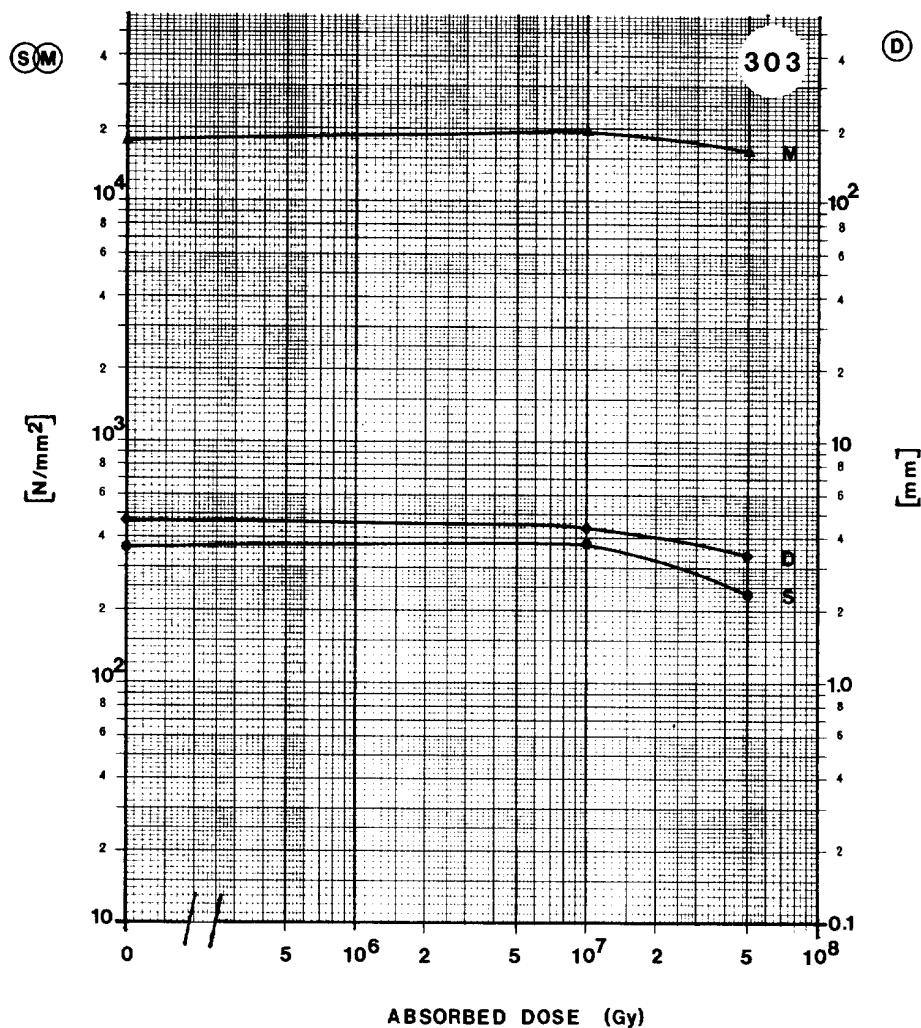
# ARALDITE F

## CY205

- 67 -

MATERIAL: MAGNET COIL RESIN ORLITHERM® REINFORCED WITH  
A SANDWICH TAPE BUILT UP OF A FIBRE-SILANIZED  
WOVEN GLASS TAPE TYPE 3 AND A POLYIMIDE FILM  
SUPPLIER: BBC BADEN

### Remarks:



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	379.6 N/mm <sup>2</sup>
D	Deflexion at break	4.7 mm
M	Modulus of elasticity	1.8 × 10 <sup>4</sup> N/mm <sup>2</sup>

# ARALDITE F

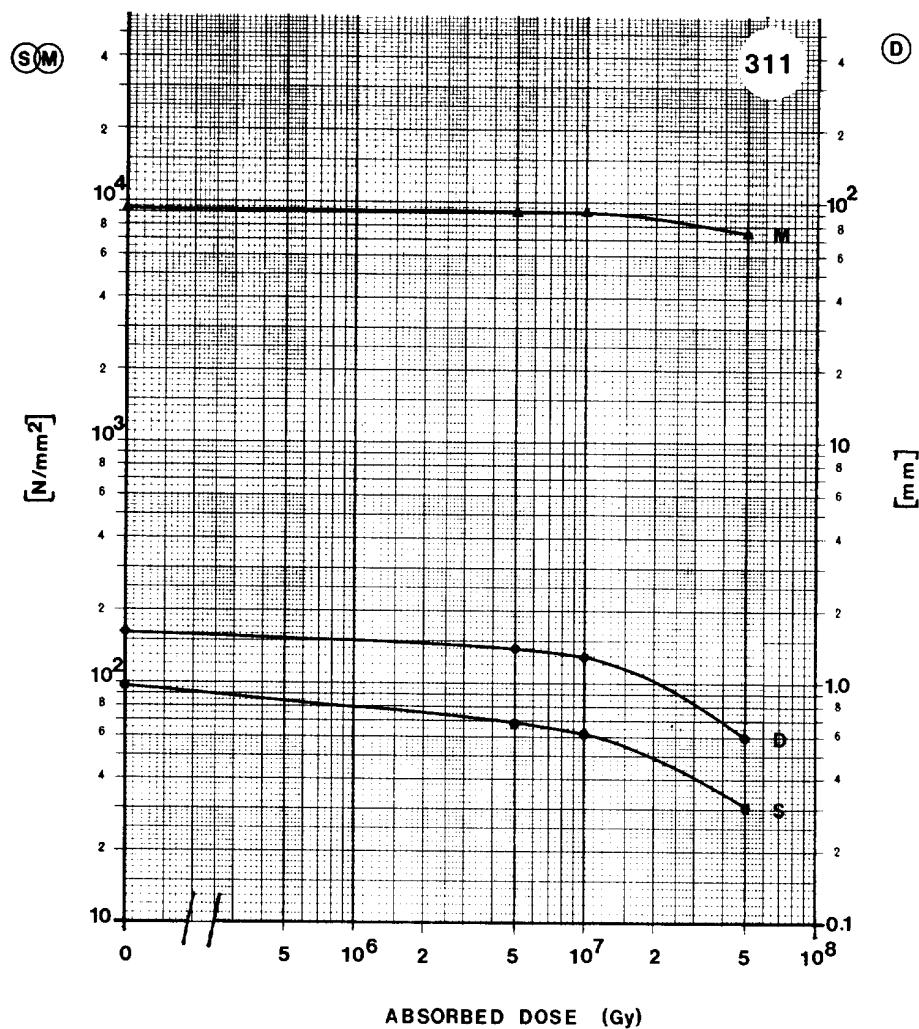
## CY205

- 68 -

**MATERIAL:** CY 205(100) + HY 906(80) + DY 061(0.5) + SILICA

**SUPPLIER:** CIBA-GEIGY

**Remarks:** USED FOR PS (SC) - LF AND LG MAGNET COILS



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	96.1 N/mm <sup>2</sup>
D	Deflection at break	1.6 mm
M	Modulus of elasticity	9.3 × 10 <sup>3</sup> N/mm <sup>2</sup>

# ARALDITE F

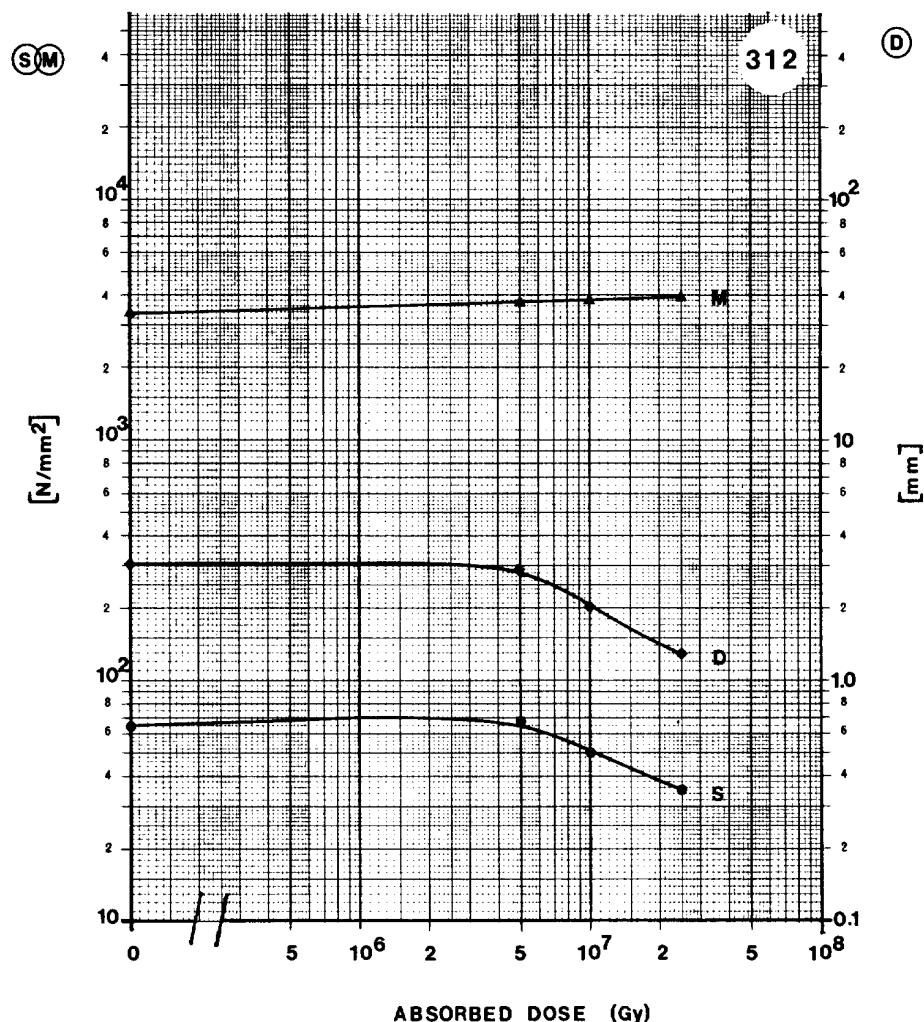
## CY205

- 69 -

**MATERIAL:** CY 205(100) + HY 906(80) + DY 061(0.5)

**SUPPLIER:** CIBA-GEIGY

**Remarks:** USED FOR PS (SC) - LF AND LG MAGNET COILS



CURVE	PROPERTY	INITIAL VALUE
S	Ultimate flexural strength	64.9 $\text{N/mm}^2$
D	Deflection at break	3.0 mm
M	Modulus of elasticity	$3.4 \times 10^3 \text{ N/mm}^2$

